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volume 45

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1. Wood, H. F., and McCarty, M.: Am. J. Med. *17*:768 (Dec.) 1954. 2. Stollerman, G. H., et al.: Am. J. Med. *15*:845 (Nov.) 1953. 3. Rantz, L. A.: Disease-a-Month *1*:18 (Oct.) 1954. 4. Kroop, I. G., and Shackman, N. H.: Proc. Soc. Exper. Biol. & Med. *86*:95 (May) 1954. 5. McEwen, C.: M. Clin. North America (Mar.) 1955, to be published.

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CONTENTS

PAGE

Toxicity Criteria Used in Judging the Labeling of Pesticides 723
JUSTICE C. WARD

Perinatal Mortality Rates as an Aid in Assessing Maternity Care 728
JEAN PAKTER, M.D.; CARL L. ERHARDT; AND HAROLD JACOBZINER, M.D., M.P.H.

Role of Municipal Health Department Engineers in Public Works Programs . 736
HAROLD ROMER, M.C.E., AND ROLF ELIASSEN, SC.D.

Pathogenicity and Immunology of Newcastle Disease Virus (NVD) in Man . 742
ALFRED S. EVANS, M.D.

New Tools in Health Education 746
WINFIELD G. DOYLE, ED.D.

Use of a Review Committee in the Evaluation of a Program for Handicapped Children 751
HELEN M. WALLACE, M.D.; ROBERT S. SIFFERT, M.D.; HORACE YU, M.D.; MARGARET A. LOSTY, R.N.; AND HELEN M. GOSSETT

Continued on page vi

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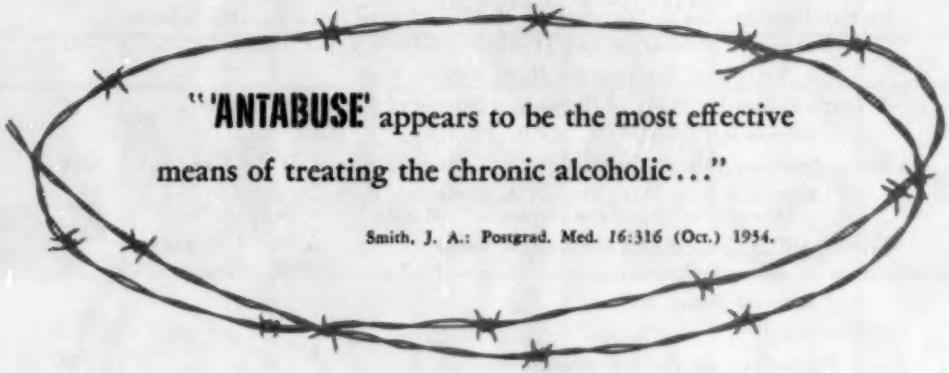

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Contents—Continued PAGE

Epidemiology of Infectious Hepatitis: Observations on a School Outbreak . 759
WILLIAM R. STINGER, M.D., M.P.H.

Canada's Laboratory and Radiological Services Grant 763
FREDERICK W. JACKSON, M.D., D.P.H.

Bacteriologic Studies in Disinfection of Air in Large Rural Central Schools. II. Ultraviolet Irradiation and Triethylene Glycol Vapor Treatment . . . 767
F. WELLINGTON GILCREAS AND HAZEL ROBERTS READ

A Year's Follow-Up Study of Illness in a Sample of Premature Infants . . . 774
GEORGIA B. PERKINS, M.D., M.P.H.

Newer Studies on the Epidemiology of Fungous Infections of the Feet . . . 784
RUDOLF L. BAER, M.D.; STANLEY A. ROSENTHAL, PH.D.; HYMAN ROGACHEFSKY, M.D.; AND JEROME Z. LITT, M.D.

The Penicillin Content of Poliomyelitis Vaccine (Salk) and Its Administration to Allergic Patients 791
SHEPPARD SIEGAL, M.D.

EDITORIALS:

A Perspective on Poliomyelitis Prevention 793

A Cooperative Achievement in Standard Methods 794

A New Opportunity—Preventing Blindness from Retrolental Fibroplasia . 795

Letters to the Editor:

William M. Cruickshank, Ph.D. 797

Samuel M. Wishik, M.D. 797

Committee Reports:

Administration of Local Inspection Services. Committee on Municipal Public Health Engineering 799
PAUL W. PURDOM, Chairman

We Study Ourselves. Committee on Research and Evaluation 807
CLAUDIA B. GALIHER, M.P.H., Chairman, and JEANNE E. WRIGHT, M.P.H., Co-Chairman.

Clearing House on Public Health Salary Information and Personnel Needs . . 811

Credit Lines 815

Books and Reports 820

Books Received 824

A Selected Public Health Bibliography 825

Association News 828
Fellowship in the American Public Health Association. 1955 Governing Council Nominations. Public Health Best Seller (Control of Communicable Diseases). Meetings of Affiliated Societies. Eighty-Third Annual Meeting, Kansas City, Mo., November 14–18: Hotel Rates, Hotel and Motel Reservation Forms.

Employment Service 836

News from the Field 839

Conferences and Dates 848

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INDEX TO ADVERTISERS

	Page
American Public Health Association:	
Affiliated Societies and Branches	XXXII
Book Service.....XXIX, XXXI,	XXXIV
Governing Council.....	X, XI
Membership Application Blank	XXXI
Sustaining Members	XXVIII
American Bottlers of Carbonated Beverages	IX
American Can Company.....	XVI
American Meat Institute.....	XXXVII
American Seal-Kap Corp.....	XXXVI
Ayerst Laboratories (Antabuse)....	V
Busse, Robert & Co., Inc. (Microscope Coverslips)	XXIX
Busse, Robert & Co., Inc. (Examination Capes)	XXXV
Columbia University Press.....	VIII
Corning Glass Works.....	XIII
Crown Cork & Seal.....	XX
Cutter Laboratories (Dip-Pert-Tet-Alhydrox)	III
Difco Laboratories (PPLO Isolation and Cultivation)	Back Cover
Directory of Health Service.....	XXIX
Black & Veatch	
Emerson Venable, P.E.	
Professional Examination Service, A.P.H.A.	
Diversey Corporation (Detergent Compound Composition)	XXXVI
Dixie Cups	XXXIII
Harvard University Press.....	XXIV
Hoffmann-La Roche (Breakfast Cereals)	XXV
Holland-Rantos Co., Inc. (Koromex)	XXXV
Lederle Laboratories (Mumps Vaccine)	XXXV
Lehn & Fink (Lysol).....	XXIII
M & R Laboratories (Similac).....	XXII
Millipore Filter Corporation.....	XII
Mosby, C. V., Company.....	XXI
National Dairy Council.....	XIX
Oval Wood Dish Corporation.....	XXVII
Pfizer Laboratories, Division, Chas. Pfizer & Co., Inc. (Terramycin-Tetracyn)	VII
Powers X-Ray Products, Inc.....	XXXIII
Schieffelin & Co. (C-Reactive-Protein Antiserum)	II
Staplex Company (Air Sampler)...	XVII
Sterwin Chemicals, Inc. (Quaternary Amonium Germicide)	XIV
Wallace & Tiernan (Chlorination Equipment)	XXVI
Wallace & Tiernan (Ointment Salundek)	XXVII
White Laboratories (Cod Liver Oil)	XV
Wyeth, Inc. (Bicillin).....	XVIII

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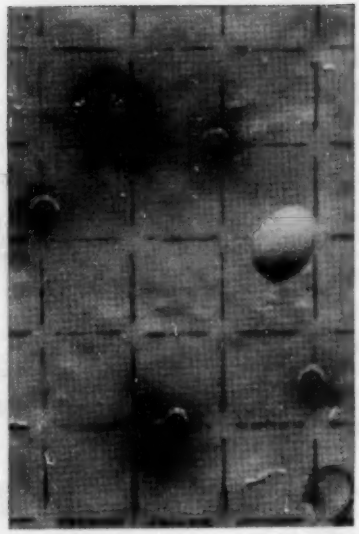

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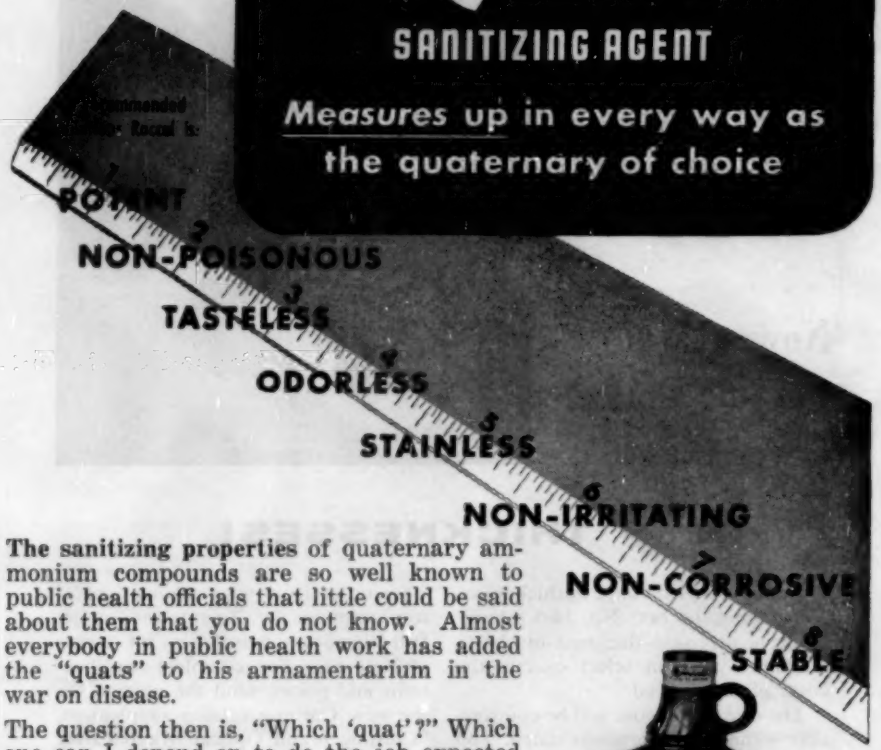

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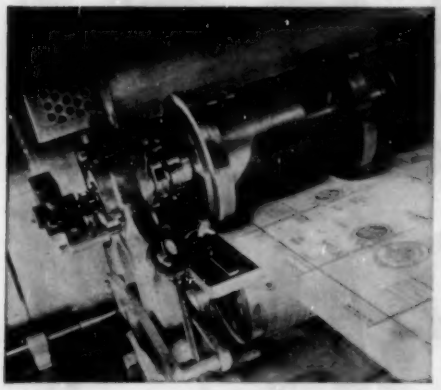

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1. Smith, C. A., and others: Am. J. Syph., Gonor. & Ven. Dis. 38:136 (March) 1954. 2. Council on Pharmacy and Chemistry: New and Nonofficial Remedies. J. B. Lippincott Co., Philadelphia, 1954, p. 148.

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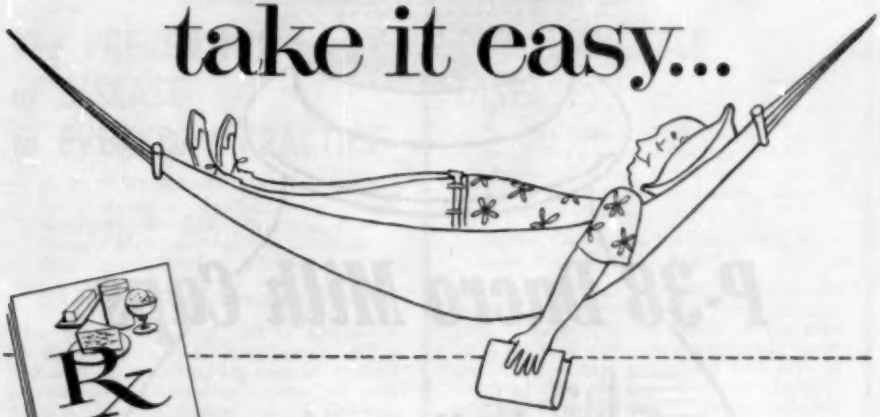

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1. Editorial: J.A.M.A. *134*:606 (June 14) 1947. 2. Hansen, A. E., and Burr, G. O.: J.A.M.A. *132*:855 (Dec. 7) 1946. 3. Hansen, A. E.; Knott, E. M.; Wiese, H. F.; Shaperman, E., and McQuarrie, I.: Am. J. Dis. Child. *73*:1 (Jan.) 1947. 4. Hansen, A. E.: In. Vitamin B_6 in Human Nutrition, Report of the Tenth M & R Pediatric Research Conference, Columbus, M & R Laboratories, 1954, p. 51. 5. National Research Council: Maternal Nutrition and Child Health, Bull. 123 (Nov.) 1950. 6. Meyer, H. F.: Essentials of Infant Feeding for Physicians, Springfield, Illinois, Charles C. Thomas, 1932, p. 44. 7. Martin, C. W.: New York State J. Med. *32*:1012 (Sept.) 1932. 8. Stoesser, A. V., and Nelson, L. S.: Journal Lancet *73*:487 (Dec.) 1953.

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1 *Klarmann, E. G.; Wright, E. S. and Shternov, V. A.: Prolongation of the antibacterial potential of disinfected surfaces, Applied Microbiology 1:19 (Jan.) 1953.*

2 *Smith, C. R.: Disinfectants for tuberculosis hygiene, Soap and Sanitary Chemicals 27:130 (Sept.) 1951; 27:145 (Oct.) 1951.*

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INSIDE SCIENCE

The Vital Story of BREAKFAST CEREALS

with essential vitamins and minerals restored

by Science Writer

This article is one of a series devoted to the story of vitamin enriched or restored cereal products: white bread and rolls, white flour, corn meal and grits, macaroni products, white rice, breakfast cereals, farina.

Increasing in popularity over the years, breakfast cereals are used throughout the United States by young and old alike. Eaten with fruit and milk or light cream, they contribute an excellent combination of basic, flavorful, nutritious foods to the diet of children and adults.

In the past decade the use of these foods has grown markedly. In fact, it is estimated that there has been a 20% increase during the period. In 1953 the increase was much higher than the average of previous years. It was 5.5%.

During 1953, for example, many tons of breakfast cereal foods were eaten in the United States. Industry figures show that 4.6 pounds of dry cereals and 2.5 pounds of hot (cooked) cereals per person were consumed.

Many grains are processed to make breakfast cereals: wheat, corn, rice, oats. Often these foods may be eaten just as they come from the manufacturer's package. Or they may require only a short period of cooking to be ready for the table. They appeal to busy home-makers, as well as to institutional dietitians, because they are readily available in a variety of flavors to add interest and value to an important, but sometimes neglected, meal. They are used in cookery, too.

A Nutritional Advance

As the science of nutrition advanced in recent years, it was found that losses of essential vitamins and minerals occurred during processing of wheat, corn and rice into breakfast foods. When this became know, most manufacturers acted to overcome the losses. They adopted restoration.

Restoration simply means that certain vitamins and minerals are added to the cereal food during processing so that the finished product is generally equal to the whole grain values of those elements. The vitamins thiamine (B_1), riboflavin (B_2), and niacin as well as the mineral, iron, are used in restoration. Vitamin D is also added sometimes.

The recent trend toward pre-sweetened cold cereals for breakfast consumption and between-meal snacks emphasizes the nutritional importance of vitamin fortification. Increased calories require more "B" vitamins for proper utilization.

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Riboflavin is the vitamin which is essential for growth. It helps to keep body tissues healthy and to maintain proper function of the eyes.

Vitamin D is important to prevent rickets in children and the development of certain abnormal bone conditions in adults.

Iron is essential for making good red blood and for preventing nutritional anemia.

Where Do The Vitamins Come From?

At about the same time that processing losses in breakfast cereals became known, other developments in the science of nutrition produced ample supplies of vitamins at economical prices. Thus, the quality of breakfast cereal foods could be, and was, greatly improved through restoration.

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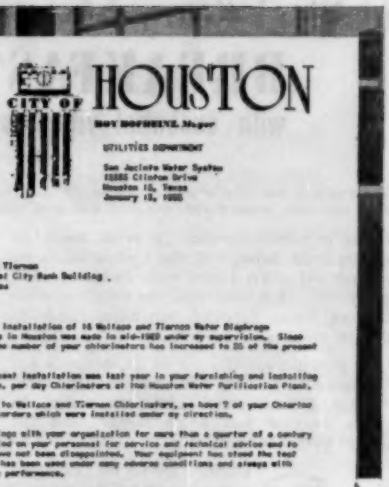
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American Journal of
PUBLIC HEALTH
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Official Monthly Publication of the American Public Health Association, Inc.
Volume 45 June, 1955 Number 6

Toxicity Criteria Used in Judging the Labeling of Pesticides

JUSTUS C. WARD

Our Association long has pressed for protective legislation to guard the nation from dangerous substances, whether offered as foods or for use as pesticides. This paper explaining the general principles upon which the current program of federal control for the latter is based becomes of interest to all.

Throughout the history of this country, as soon as a new chemical was found to be outstandingly useful in controlling a pest, its wholehearted adoption was more a matter of distribution than of time. The fact that some of these materials possessed definite hazards to the users was recognized, but generally was accepted as an inescapable characteristic of an effective product. This is equally true of other chemical specialties, such as new drugs, detergents, polishes, solvents, or other household products, since for many years all that was needed to insure successful introduction of a new material was that it would give superior or more economical performance in controlling a pest, in treating a disease, or in simplifying a household chore.

Such a situation invited promotional sales campaigns wherein the actual values of the products were subordinated in the attempt to sell them through exaggerated claims, and public-spirited groups began to realize that more stringent controls over drugs and poisons were needed, particularly as to quality and the claims for performance. Many years of persistent propagandizing and aggressive action, often in the face of industrial opposition and public apathy, resulted in the passage of the Food and Drug Law in 1906 and the Insecticide Act in 1910. Most members of this Association are well acquainted with the former act, but may not be so familiar with the latter.

The Insecticide Act of 1910 served to insure the purchaser of an insecticide that he would receive an effective product which would contain the quantity of active ingredients claimed for it.

Mr. Ward is chief, Pharmacological and Rodenticide Unit, Pesticide Regulation Section, U. S. Department of Agriculture, Washington, D. C.

This paper was presented before a Joint Session of the Engineering, Epidemiology, Food and Nutrition, and Industrial Hygiene Sections of the American Public Health Association at the Eighty-Second Annual Meeting in Buffalo, N. Y., October 15, 1954.

For some 37 years this law was the principal federal statute dealing with the particular classes of pesticides for the control of which it was designed. Many years before its revision in 1947, however, the fact was recognized that certain classes of pesticides which were not included in the 1910 law also needed control, and that many other features of poison handling not related to performance and purity were highly important. So it was that the discovery and introduction of DDT, 2, 4-D, BHC, chlordane, TEPP, parathion, alphanaphthylthiourea, sodium fluoroacetate, and a host of other new and spectacular insect, weed, and rodent killers in the period from 1935 to 1945 presented problems for which there were no answers. For a short time after these new poisons appeared, the historic system of judging the acceptability of new pesticides exclusively on their performance remained in force and there was no federal law to prevent their widespread sale and general use.

Forward-thinking health, medical, and enforcement officials soon appreciated, however, that public safety in the new "chemical age" was going to demand more information about a poison than just its capacity for killing the pest. As a consequence, the work of revising the act of 1910 was pushed, and provisions were written into the new law permitting the Department of Agriculture to require on a pesticide precautionary labeling adequate, when complied with, to protect the public. It was given authority, also, to request toxicologic information on the new poisons sufficient to determine the adequacy of that labeling. All of this was made a part of the information needed to justify registration of the poison, and registration was made obligatory for every pesticide to be shipped in interstate commerce. Following proper public hearings on the bill, the Congress passed the measure and it was made into law on June 25, 1947, with effective dates on December 25, 1947, and June 25, 1948, as to the different pesticides to be covered.

The immediate effect of this new law was to bring to a halt the indiscriminate introduction of strange new poisons into interstate commerce. Almost immediately it became apparent that enforcement of the safety provisions of the Federal Insecticide, Fungicide, and Rodenticide Act was to be a most involved proposition. These provisions were intended in the first place to insure that the user of a poison be informed on the label, in clear and nontechnical language, as to just what dangers he faced in handling the material—and how to avoid injury to himself. Next, they were intended to point out to the user how the product must be employed to avoid hazards to the beneficial forms of life which might be covered by the spray itself or to the innocent bystander who might wander into a treated area before the poison had dissipated. And finally, they were intended to permit controls over permissible dosages and directions for use which would guarantee that the residues left on the food crops would be within acceptable limits.

Since these responsibilities were so all-inclusive, and since the agency in the Department of Agriculture to which the functioning of the law was assigned was a small organization, authority for cooperation with other governmental agencies was granted in the act. So it is that hazard problems of new poisons are discussed with the Public Health Service and food residue evaluations with the Food and Drug Administration. This procedure is operating quite smoothly and is much less complicated than it might appear to be.

To show the effects of the Federal Insecticide, Fungicide, and Rodenticide Act in reducing the hazards of using poisons, however, it is of interest to review briefly just how difficult it is for a research chemical to become a pesti-

cide. At the outset it is rarely possible for the chemist who synthesizes the new candidate product to forecast what specific pesticidal value it will have. That this is inevitable is shown by the fact that it might be useful as an insect killer, an insect repellent, a fungicide, a weed killer, a bactericide, a rodenticide, a rat or mouse repellent, a rabbit or porcupine repellent, or a disinfectant. Chemical structure does not necessarily give a hint as to where the value might appear. Early work on a chemical usually includes screening for effectiveness in the particular pesticidal field for which the laboratory making it was established. Then, when a use has been discovered, it is essential for the commercial agency that will exploit the chemical to undertake a minimum toxicologic evaluation. For every new pesticide that means determination of its acute oral toxicity and some information on its skin absorbability and inhalation hazard. These data are necessary to determine the types of danger the user may encounter in using the poison.

With this preliminary information at hand the need for further toxicologic study and the extent to which it must be carried is based on the type of use for which the chemical is intended. A material that will be used on the turf of a golf course once a year would require much less complete toxicologic examination than one used five or six times a year on a food crop or one used in household sprays where it could be employed every time a fly, gnat, or mosquito invaded the kitchen or nursery, or an ant or cockroach was found in the kitchen.

It is well to emphasize again at this point that the Federal Insecticide, Fungicide, and Rodenticide Act is a labeling law and not a prohibitory statute. Authority is not granted to exclude a poison from interstate sale, provided its labeling is adequate to protect the public. In this regard, the basic concept of the law is that an individual of ordinary intelligence is competent to read and follow label directions, and if those directions are adequate when complied with to prevent injury that is as far as this law is expected to go.

As was implied above, however, the amount of toxicologic information that may be needed to determine the adequacy of the precautionary labeling and the proper directions for use may be quite extensive. For example, the new chemical may have been found to have utility in controlling an insect on food crops and the preliminary toxicity data may have shown that it could be used with the normal precautions, since no unusual hazards to the user had been disclosed and the opinion of the Public Health Service on the precautionary labeling had been favorable. Use of the chemical on foods, however, could not be approved due to lack of long-term pharmacologic data and adequate chemical residue analysis. Without such information at hand, there was no basis for judging the adequacy of the directions or for requesting formal Food and Drug Administration concurrence in the proposed use. The complexity of this review is recognized by the fact that new poisons are accepted for specific uses as residue data on each crop become available, and the results of long-term feeding studies show that the residues found are within safety limits.

Many times two-year feeding tests on rats, one-year feeding tests on a nonrodent species, and complete pathology on these test animals are essential. Sensitive new chemical or biologic methods for residue analyses are needed and extensive residue data must be available before any use on a food crop can be registered. In this way poisons have been kept out of food use until the proposed application has met the requirements of both the Department of Agriculture and the Food and Drug Administration.

These discussions have applied largely to agricultural poisons which leaves household pesticides in a peculiar category of their own. Where a chemical has toxicologic characteristics that would require the use of protective clothing and masks or respirators to give adequate protection, it is possible to show that such a product is not suitable for household use other than by professional pest control specialists. Where the hazards are of a less spectacular, but more insidious nature, however, the problem is more involved.

It is essential to have reasonably complete acute oral toxicity, skin absorption, and inhalation data on a spray intended for use in the home. This information must be supplemented by skin irritation or sensitization studies if the product is to be proposed as a mothproofer, insect repellent, or for other uses where it will contact the skin, and by repeated inhalation tests if it is to be used in an aerosol or hand sprayer. When data which appear adequate to the Department of Agriculture have been submitted, the Public Health Service is asked to comment on the proposed labeling and on the propriety of the suggested uses. Following this, registration may be considered.

It is apparent from this summary that there are no simple, fixed procedures which may be followed by a manufacturer and, when results are favorable, will always insure acceptance of a pesticide for interstate sale. The attitudes of physicians and pharmacologists toward chemicals vary as new laboratory findings or experiences in use become available and legal requirements should not be so precise that new concepts of hazard or safety cannot have prompt consideration.

Shifting of scientific opinions is an added problem for the law enforcement official, however, since he must attempt to determine the legal significance of any new philosophy toward the product. Too often the impression he gets upon investigation is that there is a wide difference of opinion among experts and many times he finds that the same data are given widely divergent interpretations by equally qualified laboratories.

Under those conditions it has been maintained by the administration of the Federal Insecticide, Fungicide, and Rodenticide Act that public interest is served to best advantage by maintaining a flexible procedure whereby each poison may be studied individually and on its own merits. It is felt that when data on a poison requested of a manufacturer by the Department of Agriculture is acceptable to its specialists, as well as those of the Public Health Service or the Food and Drug Administration, the proposed use should be registerable.

There is no doubt but that the Federal Insecticide, Fungicide, and Rodenticide Act has had a major effect on the speed of introduction of new poisons, and certainly it is no longer true that a pesticide can be placed on the market without pretesting, as was charged more legitimately before 1947. In addition, there is a provision in the law that permits cancelation of a full registration on the motion of the Secretary of Agriculture. This action must be followed immediately, however, by the issuance of a registration under protest which is to be accomplished by a letter to the manufacturer explaining in detail why the action to cancel was taken. Such a procedure permits prompt action to notify a manufacturer that unfavorable use experience has indicated need for curtailing distribution of his product.

The latest legislative move made in this field of pesticide control deals entirely with the establishment of safety limits for economic poisons on raw agricultural commodities. This bill was the outgrowth of extensive hearings held in 1950, 1951, and 1952 before a Select Committee of the House of Representatives to investigate the use of chemicals

on food products. It took the form of an amendment to the Food, Drug, and Cosmetic Act and following the usual hearings and revisions was made law on July 22, 1954.

The wording of the amendment gives industry the responsibility for assembling performance, residue, and toxicologic data upon which may be judged the safety of the proposed tolerance for the product in foods. It makes the Department of Agriculture responsible for reviewing the performance and residue data submitted and then for certifying to the Food and Drug Administration as to the usefulness of the product and as to the reasonableness of the proposed tolerances in the light of the residues found when the poison was used as required to give control of the pest involved. It is then the responsibility of the Food and Drug Administration to determine the safety of the proposed tolerance. Such a procedure takes advantage of the experience and facilities of both agencies of government and it is felt that this will serve the public interest most effectively. It is contemplated that a new chemical will not usually be registered for application to food until its safety has been established by this procedure and a tolerance which can be met by using the product in accordance with sound directions has been set.

It would be unrealistic to imply that there are no problems left in the legal controls over new economic poisons. And it must be admitted that just as serious problems remain, also, regarding further controls over useful drugs, firearms, cars, planes, and other useful things which serve—and endanger—us daily in this modern world. It is encouraging, however, to be able to report to the American Public Health Association that much progress in pesticide management has been made in the few years since 1947.

The future of poisons control cannot be forecast with certainty, but already it is apparent that the public is demanding increasing protection against insidious chemical agents, whether they be smog, car gas, industrial fumes, strong drugs, household chemicals, intentional food additives, or pesticides.

An informed American Public Health Association will do much to make new moves realistic so that the dangers inherent in chemical use may be guarded against, while the values of such use can be preserved for the never-ending fight against economic loss, discomfort, and disease.

Among the recommendations made by the Task Force on Medical Services to the Commission on Organization of the Executive Branch of the Government, is the following:

"That the Department of Health, Education, and Welfare provide more leadership and assume more responsibility in planning and carrying out the programs of the federal government that relate to civilian health, exploring sound means within public policy of assisting the American people to improve their own health."

(From the Report on Federal Medical Services. Prepared for the Commission On Organization of the Executive Branch of the Government by the Task Force on Medical Services, February, 1955.)

Perinatal Mortality Rates as an Aid in Assessing Maternity Care

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If neonatal death rates are to be lowered to the extent that infant death rates have improved, then better prenatal and obstetrical care must be offered. How those hospitals most in need of improving these services may be identified over the years is suggested. Cognizance of the variables influencing the perinatal mortality rates is essential.

Maternal and infant mortality rates are often used as criteria to determine the status of public health in a community. Progress as judged by these criteria has been most marked in the saving of the lives of mothers. Improvements have been substantial, too, in the saving of the lives of infants—particularly in the postneonatal period. Relatively the least improvement has occurred in bringing pregnancies to successful completion, as is evidenced by the comparatively slower decline in perinatal mortality rates (the combination of late fetal and early neonatal death rates). The reasons for such a combination and the individual trends of the perinatal rate and each of its components in New York City have been reported on elsewhere.[1, 2]

Since 99 per cent of all deliveries are consummated in hospitals in New York City, it is apparent that the perinatal deaths for the most part are occurring in hospitals. The present investigation was undertaken as a preliminary evaluation of the perinatal death rate as an index of obstetric care in the hospitals of New York City.

More than 165,000 deliveries (including those resulting in live births and late fetal deaths) occur annually in 103 hospitals in the city. With the exception of three federal institutions, the remaining 100 hospitals fall into three categories: (1) Proprietary (which are essentially business enterprises catering only to private patients who pay the full costs of hospital care); (2) voluntary (which operate under state charter on a nonprofit basis, the proportion of service and private patients varying with the individual hospital); and (3) municipal (which serve mainly the indigent population, provide largely free care and draw their clientele from the lower socioeconomic group).

Approximately two-thirds of the mothers in New York City are under private care and for the most part are delivered in either the proprietary or the voluntary hospitals. The remaining one-third are service cases and are either delivered on the ward services of voluntary hospitals or in municipal hospitals. The proportion of patients cared for in the three types of hospitals in 1952 was: Proprietary—22 per cent (all private cases; voluntary—61 per cent (private 71 per cent, service 29 per cent); and municipal—17 per cent (almost all service cases). Of the service cases in the city, almost half are delivered in voluntary and the remainder are delivered in municipal hospitals.

Although it has been the impression of maternal and child health administrators that improvement has occurred in hospital facilities and policies, an objective measure of improvement has not

been applied as yet. To assess any changes an accurate periodic index of maternity hospital care is desirable. Such an index could be utilized as a basis for comparison in a given hospital for different periods and with other hospitals for the same period.

In the search for such an index consideration must be given to the rate or rates that would serve most reliably. Both fetal and neonatal deaths must be considered, since similar factors may influence each. But the two groups are not mutually exclusive as they seem to be. It is not always apparent in a given instance whether a fetus has been born alive or "still." To take into account possible variations in judgment as to the state of the fetus at delivery, and to have a single figure to use, the "perinatal death rate" has been selected as the index of choice. For the present analysis we have used a perinatal death rate with a numerator comprised of infant deaths under one week of age plus fetal deaths (28 weeks and over), and a denominator of total live births plus fetal deaths (28 weeks and over).*

For our initial study all hospital births, fetal deaths, and infant deaths as defined above were tabulated for the city as a whole, by borough, and by hospitals within the borough. The hospitals were divided into three categories: proprietary, municipal, and voluntary. These in turn were subgrouped by number of deliveries.

Results

Table 1 shows the infant death rates, the fetal death ratios, and the perinatal mortality rates for all hospitals operated under the three stated auspices.

The rates and ratios are highest for the municipal, lowest for the proprietary and median for the voluntary hospitals. Only 17 per cent of the live births in 1952 occurred in municipal hospitals. But the comparatively high rates and ratios for these institutions, in which a small proportion of deliveries occurred, exert a substantial influence in producing the city aggregates.

The ranges are quite revealing also. There is considerable overlapping. While great disparity exists between these hospital groups at the low end of the range, the differences at the upper ends are considerably smaller. The rates for some of the voluntary and proprietary hospitals, in other words, were higher in 1952 than those for some of the municipal hospitals.

Especially cogent to the present discussion is the fact that the highest fetal death ratio is established by a proprietary hospital. This is even more noteworthy when one knows that the particular institution is the one which had an infant death rate of zero. Only 106 live births occurred in this institution in 1952, so that the rates can hardly be considered stable, but it does serve to illustrate the point under discussion. In 1951 the municipal hospital with the lowest infant death rate was also the one with the highest fetal death ratio. In this case the data were based upon more than 1,500 births.

Disregarding auspices and size of service for illustrative simplicity, Table

* The decision to limit fetal deaths to those of 28 weeks or more gestation was made not only because viability at this period is more certain, but because delivery of fetuses of this period is more likely to occur in a hospital and thus be subject to control within the hospital. Similarly, the infant deaths were limited to those occurring at less than one week of age since hospital stay is now usually of that approximate duration.

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Table 1—Infant, Fetal, and Perinatal Mortality by Hospital Type—New York City, 1952

Infant Death Rate

	Rate per 1,000 Live Births	Range	
		Low	High
All hospitals	15.7	7.8	35.9
Municipal hospitals	26.8	17.3	35.9
Voluntary hospitals	14.5	7.8	27.2
Proprietary hospitals	10.8	0.0	18.2

Fetal Death Ratio

	Ratio per 1,000 Live Births	Range	
		Low	High
All hospitals	14.4	0.6	37.7
Municipal hospitals	22.0	15.9	32.0
Voluntary hospitals	13.0	0.6	31.1
Proprietary hospitals	12.5	2.7	37.7

Perinatal Mortality Rate

	Rate per 1,000 Live Births, Plus Fetal Deaths	Range	
		Low	High
All hospitals	29.7	10.6	59.6
Municipal hospitals	47.7	32.7	59.6
Voluntary hospitals	27.2	16.3	47.2
Proprietary hospitals	23.0	10.6	36.4

2 lists the 33 hospitals in New York City having perinatal mortality rates above the 1952 average of 29.7 for all hospitals combined. These are the hospitals in which the highest combined fetal and infant losses were recorded. A logical question is "Does such a procedure, using the perinatal mortality rates as the criterion for comparing hospitals, miss any institutions which have higher than average infant or fetal mortality?"

Eight hospitals which do not appear in this list had infant mortality rates equal to or higher (15.7–18.2) than the average of 15.7 for all hospitals. A hospital for which the infant mortality rate exceeded the city mean by as much as 17 per cent was therefore missed. But variation of this extent could be expected as a result of chance alone. Furthermore, all of these eight hospitals recorded fetal death ratios below the city average; those two which most exceeded the city infant death rate recorded fetal death ratios of 5.6 and 10.4, both well below the city mean of 14.4.

Seventeen hospitals with fetal death ratios above (14.7–20.3) the city average of 14.4 are not included in this list,

Table 2—Perinatal, Infant, and Fetal Mortality: Hospitals with Perinatal Mortality Ratios Higher than City Average—New York City, 1952

Hospital	Mortality Rates		
	Perinatal	Infant	Fetal
All hospitals	29.7	15.7	14.4
A	59.6	29.4	32.0
B	55.1	32.5	24.0
C	53.2	35.9	18.3
D	49.6	22.1	29.0
E	49.5	30.7	19.8
F	49.3	33.6	16.5
G	47.2	27.3	20.9
H	46.4	24.7	22.8
I	45.4	26.3	20.0
J	45.1	24.9	21.2
K	44.2	18.8	26.5
L	43.2	27.1	16.8
M	40.6	23.2	18.1
N	40.5	20.8	20.5
O	39.5	11.6	29.1
P	38.8	8.9	31.1
Q	37.9	21.6	16.9
R	37.8	17.6	21.1
S	36.7	16.7	20.8
T	36.7	27.2	9.8
U	36.4	0.0	37.7
V	35.5	20.3	15.8
W	34.7	17.7	17.7
X	33.1	12.1	21.7
Y	32.7	17.3	15.9
Z	32.6	21.8	11.2
AA	31.4	17.4	14.4
BB	31.2	13.0	18.8
CC	31.0	15.7	15.7
DD	30.8	16.3	15.0
EE	30.7	17.9	13.2
FF	30.1	16.8	13.7
GG	29.9	18.5	11.7

but the infant mortality rate in each of these institutions was well below (6.0–15.5) the city mean of 29.7. For example, the hospital where a fetal death ratio of 20.3 (40 per cent above average) was recorded in 1952 showed in that year an infant mortality rate of only 8.4, about one-third the city average. Moreover, the fetal death ratio in this hospital was within the limits of chance variation.

On the other hand, the perinatal mortality rate does select hospitals which have low infant or fetal loss records, when the other component of the perinatal ratio runs unusually high. For example, the list includes five institutions with infant mortality rates of 13 or lower (0.0–13). In these hospitals the fetal death ratio ranged from 18.8 to 37.7, 31–162 per cent above the city average. Similarly, five hospitals are listed for which the fetal death ratio was equal to or less than the city mean. In these five hospitals, the infant death rate ranged from 16.8 to 27.2, 8 to 73 per cent above the average for all hospitals.

The use of the perinatal rate alone as the initial criterion for ranking hospitals with respect to infant and fetal loss may miss some hospitals with higher than average infant mortality rates or higher than average fetal death ratios. However, if a single figure is to be used, the perinatal mortality rate should be selected since grosser deviations will be picked up by this rate alone.

To use the data discriminately for administrative purposes, it may be wise to show the component rates for infant and fetal loss in addition to the perinatal rates so that in any given case the relative proportions contributing to the perinatal death rate can be ascertained.

For a proper interpretation of such figures, however, it is essential to remember that the level of the perinatal death rate may be influenced by factors other than the intrinsic factor of obstetric care. The effects of such other factors on the perinatal death rate and the extent of such effects have to be evaluated. Those considered in this paper are: (1) category of hospital; (2) size of hospital; (3) location of hospital; and (4) composition of the clientele.

Category of Hospital—As mentioned previously the aggregate rates were highest for the municipal, lowest for the proprietary, and median for the voluntary hospitals. The differences in these aggregate rates are statistically significant. The varying clientele of these hospitals by category has already been mentioned. The higher mortality rates appear to be associated with the higher proportion of service patients; the inference is clear that higher mortality rates are associated with hospitals caring for people of the lower socioeconomic groups.

Size of Hospital—Another of the factors which has been thought to influence the perinatal mortality rate is the size of the maternity service. When the proprietary hospitals were grouped according to the number of deliveries per year, the differences in the perinatal death rates of such groups were not found statistically significant. Analysis of the voluntary hospital data similarly indicated that size played no role. In the municipal hospitals there was no significant difference in the rates in those hospitals with services of fewer than 2,000 deliveries per year, as compared with those of 2,000–3,000 deliveries. However, the average rate for the municipal hospitals with more than 3,000 deliveries per year was significantly higher than the rate for the group of hospitals with less than 3,000 annual deliveries. This finding called for further scrutiny of the data.

It was known that the nonwhites accounted for 94 per cent and 73 per cent of the infants delivered in two of these municipal hospitals with services over 3,000 deliveries; whereas in the third hospital of similar size the nonwhites accounted for only 19 per cent. The difference between the rates in the two hospitals with a predominance of nonwhites and that in the third hospital of this group proved statistically significant.

It was, therefore, postulated that hospital population composition (as measured by one characteristic—color) was significantly influencing the perinatal mortality rate. The aggregate high rate for the group of three municipal hospitals was largely accounted for by the rates of the two municipal hospitals with largely nonwhite populations.

To substantiate further the premise that hospital population composition (as measured in this instance by the proportion of nonwhites) rather than size of service was responsible for the differences, the rates for the two large hospitals serving mainly nonwhite patients were compared with another selected group of municipal hospitals: three smaller hospitals in which more than 50 per cent of the live born infants were nonwhite. When these rates were compared any significance of the difference between rates for largest municipal and smaller municipal hospitals disappeared.

The higher perinatal death rates of the largest municipal hospitals therefore do not seem to be due to size, per se, and the size of the service appears to play no demonstrably significant role in establishing the perinatal death rates in the municipal, voluntary, and proprietary hospitals. Independent analysis of the 1951 data, not shown here, results in the same conclusion.

Location of Hospital—Analysis of the possible influence of location of hospital is next considered. The data are most conveniently summarized for purposes of illustration by presenting the borough figures (shown in Table 3). It is seen that the aggregate perinatal death rate is highest for hospitals in Manhattan and least in the Borough of Queens. The difference in the rates for these two boroughs is statistically significant.

It is known that a higher proportion of women are delivered as service patients in Manhattan than in Queens. In 1952 in Manhattan 45 per cent of patients delivered were service cases;

Table 3—Service Deliveries and Perinatal, Infant, and Fetal Mortality by Borough—New York City, 1952

Borough	Per cent Service Deliveries	Mortality Rates		
		Perinatal	Infant	Fetal
City	32	29.7	15.7	14.4
Manhattan	45	32.6	17.6	15.6
Bronx	35	29.7	15.0	15.2
Brooklyn	27	28.6	15.6	13.4
Queens	20	25.9	12.8	13.4
Richmond	23	29.4	14.2	15.6

whereas in Queens only 20 per cent of patients delivered were service cases. Assuming that a higher proportion of service cases indicates a lower socioeconomic plane, it can be inferred that the higher rate in Manhattan is a function of the socioeconomic status. Therefore, it seems that the geographic location of the hospital affects the perinatal mortality rate only to the extent that its location determines the composition of the hospital population. The important influence of population composition in determining the perinatal death rate is further borne out by a review of the rates for the various health districts in New York City. Such data have consistently shown high perinatal death rates in those districts with populations of low socioeconomic levels.

Hospital Population Composition—From the foregoing, it becomes apparent that the factors of type, size, and location of hospital are not the influencing factors, per se, in determining the level of the perinatal mortality rate. Rather, the constant influencing extrinsic factor appears to be the composition of the hospital population. This point of view is supported by a review of the literature which indicates that prenatal care, age, and parity of the mother and socioeconomic status are among the factors, other than obstetric care, contributing to fetal and neonatal mortality. Peller,[3] for example, in 1948 stated "It is generally believed that the solution lay in better obstetrics and better care for the newborn. At present the solution is generally sought in obstetrical help and prenatal medical care." But he believed that medical care is not the whole answer—rather the living conditions and welfare of the expectant mother during the late period of pregnancy.

Duncan, et al.[4] (using the term "obstetric death rate" rather than perinatal death rate) presented data showing that perinatal deaths fell abruptly in many populations throughout the world in the war years, notably the United States, Scotland, Wales, and the Netherlands. This seeming inconsistency was explained on the basis that in many countries attention was given to the diet for expectant mothers to a degree never given before. Duncan stipulated that age, parity, socioeconomic conditions, and medical care were among the factors influencing the "obstetric death rate." He tabulated the differences in stillbirth, neonatal, and postneonatal death rates in 1948 in Scotland by five social classes and showed the rates to be inversely proportionate to the social gradient.

Steer and Kosar[5] in a review of the mortality rates over a 10-year period at Sloane's Hospital in New York City found the total fetal mortality rate for

the ward service was 34.2 per 1,000 live births, whereas for the private service it was 19.8 per 1,000 live births. They concluded that two factors made for differences in the rates of ward and private services, namely, better health of private patients and better obstetric care for private patients. They maintained, however, that even if all preventable deaths were excluded there would still be a significant difference in the fetal mortality rate for ward patients as compared with the rates for private patients. They ascribed these residual differences to factors as yet unidentifiable and hence unmeasurable. In a national survey of health and survival of infants in different social classes drawn from all parts of England, Wales, and Scotland, Douglas [6] also concluded that social class differences exert a significant influence on infant mortality, perhaps due to higher incidence of prematurity in lower socioeconomic groups.

From a review of the literature it is apparent that a variety of approaches to the problem of analyzing and interpreting fetal and infant deaths has been made. A need exists to devise a method for adjusting the perinatal rates of hospitals for differences due to the extrinsic factor of population composition.

It has been established that a higher incidence of prematurity is associated with population of lower socioeconomic status.[7–9] Prematurity therefore must be taken into account by tabulating for each hospital proportions of infants in appropriate birth weight groups. The extent of prenatal care the mothers receive has been demonstrated to have some relationship to the outcome of the pregnancy [10–12] and hence should also be recorded for each hospital. In the future, tabulations by hospital in New York City will include in addition to category of hospital, proportion of service and private patients, extent of prenatal care, age and parity of mothers, as well as births by weight groupings.

Conclusions

This analysis of New York City data clarifies several features in the evaluation of perinatal mortality rates as an index of maternity care in hospitals.

The perinatal mortality rate of a hospital has limitations when used alone—without its components. Nevertheless, it is the most valuable single figure for the health and hospital administrator.

The perinatal death rates do not appear to be influenced by size of hospital. Location by borough, per se, like size, is not an important factor.

The hospital population composition is an important factor in influencing the perinatal mortality rate. The category of hospital reflects this component.

As indicated in the literature, characteristics of the hospital population composition such as race, extent of prenatal care, and age and parity of mothers exert a potentially measurable influence on the perinatal mortality rate. Other characteristics of population composition, such as socioeconomic status, are not readily measurable, but nevertheless are also of significance. Race, for instance, is largely influential in affecting rates as it reflects socioeconomic status.

Investigation is needed to determine the extent to which hospital perinatal mortality rates represent indexes of obstetric care after adjustment for the currently measurable extrinsic factors mentioned above has been made.

Even without such adjustment, the perinatal mortality rates for individual hospitals serve the public health administrator to focus attention on areas in need of assistance. For example, the New York City Department of Health intends to study closely those hospitals in which the perinatal rates exceed the city mean for their own category of hospitals.

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Engineering Education in Peru

The Department of Sanitary Engineering of the School of Public Health is administering a three-year contract between the University of North Carolina and the Institute of Inter-American Affairs of the U. S. Foreign Operations Administration. The purpose of the contract is to strengthen the sanitary engineering educational and research programs of the National School of Engineering of Peru.

Three staff members of the sanitary engineering department are spending some time in Peru this year. Professor Emil T. Chanlett is specializing in environmental sanitation; Professor Marvin L. Granstrom is setting up the Sanitary Chemistry and Biology Laboratory as part of the integration of laboratory teaching into the five-year undergraduate program in sanitary engineering of the Engineering School; Professor Daniel A. Okun is giving consultant service on sanitary engineering. Other faculty members will participate in the later aspects of the program.

Under this contract also faculty and engineers from Peru are being trained in the United States. Two are currently at the University of North Carolina—Alcira Florez being trained to serve in the Sanitary Engineering Laboratory and Alfonso Zavala, engineer with the Servicio Cooperativo Inter-Americano de Salud Publica.

Role of Municipal Health Department Engineers in Public Works Programs

HAROLD ROMER, M.C.E., and ROLF ELIASSEN, Sc.D.

To take its rightful place in the large field of public works, a health department will strive aggressively in planning for the future; it will exercise its historic function of control over all public health engineering matters; it will coordinate all public works facilities that affect environmental health; it will act as guide and mentor to all agencies or groups promoting or protecting health through public works.

Sanitary engineers in health departments long ago proved their worth in many phases of municipal activity. The purpose of this paper is to analyze some of the ways in which they can and have contributed to the conception, design, improvement, and operation of public works programs in municipalities. The public health engineer brings with him the influence of the health department, and with this, the good will and confidence of the citizens. These are factors of great importance in the productiveness of all public works.

The sanitary engineer in public health needs to be conversant with the design, construction and operation of public works so that he can meet engineers from other departments on common and equal grounds. As should all engineers, he should grasp the economics of the situation. Above all, however, the engineer in public health must consider the effect of public works upon the public health.

We do not infer for a moment that engineers who design and lay down specifications for public works, or who operate these works, do not have the public health at heart. Nevertheless, experience dictates that in many instances the need to economize, or the desire to design and operate these works at a lower cost, as well as difficult personnel problems, may result in losing sight of the true purpose of these expenditures, namely, safeguarding the public health. It is because of this possibility that health department engineers have an important role in public works.

Home Sewage Disposal System Failures—Approximately 5 million home sewage disposal systems have been installed in this country since the end of World War II. Many of these have failed after brief use. The number of systems installed is so great and the importance of the problem is of such magnitude that the authors have chosen to consider home sewage disposal systems as a form of public works. Actually, it might be said that these conditions have come to pass because of the lack of the necessary public works.

The department of health, whether municipal, county, or state, has the ultimate responsibility for proper disposal of all sewage. This is a prime public health responsibility. In some instances, the health department either provides little or no supervision over design and construction of home sewage disposal systems, or allows other departments, such as the building department, to supervise this function. Building departments rarely have sanitary engineers attached to their staffs, and are basically interested in proper construction from

the structural point of view with public safety as the ultimate objective. They rightly leave public health matters to the department of health, which cannot expect the building department or any other department to provide proper supervision and adequate personnel for public health engineering functions.

Prior to March, 1952, the New York City Department of Health did little about controlling new home sewage disposal systems. During the postwar years approximately 5,000 disposal systems were installed annually within the city's boundaries. Investigation revealed that in no case was a standard soil percolation test required by code; many architects and engineers were using a single stock plan for all conditions; basic requirements were erroneous or inadequate; and construction frequently did not resemble the approved plans.

The failure of large numbers of sewage disposal systems presented a serious public health hazard, as well as an economic waste. In March, 1952, the New York City Department of Health felt it incumbent upon itself to take over the active supervision of planning, designing, and constructing home sewage disposal systems. The Health Department organized an "Interdepartmental Committee on Private Sewage Disposal" in which the several interested departments actively participated. Its sanitary engineers formulated practical regulations which included the requirement that percolation tests be made in all instances; they gave lectures to groups of engineers, architects, and builders on design and construction; and provided practical field guidance during construction.

Though only a few sanitary engineers could be assigned to this specific problem, remarkably few failures of sewage disposal systems approved by the Health Department have been experienced during the past two and a half years. This same experience could be recited many times over in other health agencies as sanitary engineers applied their technical knowledge to pressing problems.

The Health Department as Coordinator—One of the most important functions of a department of health is to coordinate the efforts of the various departments and agencies concerned in the planning of public health projects. When a public works department plans a combined sewerage system, it usually places overflow control devices at convenient points to discharge untreated sewage into the river or tidal waters during periods of rainfall. The park department, on the other hand, without knowledge of the location or significance of these overflow points, may plan and build beaches at the very points of raw sewage discharge. (Witness the abandonment of the Magazine Beach on the Charles River in Cambridge as the overflow of storm drainage was permitted to take place opposite the beach.) Such situations can be obviated through the aggressive coordination by the department of health of the needs and plans of the departments involved, keeping uppermost in mind the need to prevent jeopardizing the public health. It can readily be seen that if this coordination is lacking, bathing beaches could be and have been constructed at great public expense, and yet create a potentially serious public health hazard.

In many instances the natural drainage of a river should not be interfered with because the sanitary engineer can often find other means of satisfying the needs of the people and accomplishing

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public works and public health objectives. The health department engineer in some cases may declare that abandonment of a combined sewerage system in a city is not economically feasible and recommend that swimming pools be constructed in lieu of developing beaches. In the above case where the cities of Boston and Cambridge, Mass., abandoned beaches along the Charles River, swimming pools were constructed at far less expense and greater safeguard to the health of the citizens.

The department of health should act as coordinator in public health matters so that greater standardization, where practical, can be attained. For example, one agency may state that certain receiving waters have been reduced to an MPN of 1,000 per 100 ml as a result of the installation of a treatment plant. The health department may find the MPN to be 3,000 per 100 ml. This presents an excellent opportunity for the health department engineer to coordinate the activities of the groups taking samples and performing analyses by stipulating sampling locations, phases of the tide when sampling is to be done, the minimum number of samples to be taken, laboratory procedures, etc. Particularly important is the study of sampling figures to determine whether the results are statistically significant. On numerous occasions sampling is done over a period of many years according to a set pattern. However, upon close examination of the figures it becomes apparent that the work may have little statistical significance. The room for error in sampling and analysis is very large and unless standard procedures are practiced, each agency may be talking a different language, each unintelligible to the other, and getting nowhere in the control of chlorination or other treatment processes, or the planning of new treatment works.

An excellent example of what can be accomplished by proper coordination is demonstrated by the Interdepartmental Board for the Sanitary Control and Protection of the Public Water Supply established in 1943 by the Mayor of the City of New York. This board was created at the suggestion of the City Department of Health in order to improve liaison between the various organizations concerned with water supply for the city. This board has been very active, meeting approximately every two months. The function of the board is "to receive reports relating to the quality and sanitary condition of the water supply, and to consider, make recommendations, and carry into effect conclusions reached on all matters relating to the quality, sanitary condition, treatment and sanitary protection of the water supply of the City of New York. No change affecting method of treatment, sources of supply, or the sanitary protection of the water supply shall be made until considered and decided by the Board, except in cases of emergency or in unusual or unforeseen circumstances."

This board reiterated the important function of an independent investigation of the water supply by the City Health Department. As a result of the splendid cooperation between the several agencies, and at the recommendation of the City Health Department, the coliform count of the city water supply has been considerably reduced by rechlorination at several points prior to discharging the water into the distribution system. Watershed sanitation has been much improved as a result of joint inspections, with subsequent reduction in potential hazards. The laboratories of the Department of Health and the Department of Water Supply have been cooperating in an effort to determine the differences in coliform findings by the individual laboratories. Both laboratories now use standard methods of analysis.

Many more examples of improvements might be recounted. However, the important matter is that relations

among the several agencies are excellent. As a result, the city can look forward to maintaining the high standards of quality that have made New York's water supply the envy of all.

Centralizing Sewage Treatment Facilities—It is characteristic of our times to build larger and still larger, centralized, public works structures. There has been a considerable tendency to construct one large sewage treatment plant as opposed to several smaller units. The basic reasons are to reduce initial costs of design and construction, as well as to economize on operation and maintenance. These are commendable engineering considerations provided that the residual pollutional characteristics of this large, centralized volume of sewage plant effluent can be satisfactorily handled by the receiving waters at the point of discharge.

Here again it is the responsibility of the health department to be certain that the needed hydrographic studies and biochemical assays have been made prior to approval of plans. Whereas this may appear to be an elementary consideration, it is surprising how frequently these studies and assays are either omitted or superficially touched upon. This, despite the fact that the basic purpose for expending huge sums for sewage treatment is to reduce the pollution of the receiving waters.

Garbage and Refuse Disposal—Sanitary land fills are used extensively throughout the country for disposal of garbage and refuse. There are few remaining mysteries to the proper planning and operation of a sanitary land fill. Nevertheless, unless the planning and operation are done by competent sanitary engineers, serious problems in odor control and mosquito breeding will arise.

One of the big costs of sanitary fill operations is the price of good, clean cover which frequently must be purchased and hauled a great distance. There is a great tendency, for reasons of economy, to reduce the thickness of cover to less than the usually accepted minimum of 24 inches. On the other hand, clay fill usually can be purchased at a lower price and therefore will be used. In either case, offensive odors will occur particularly after periods of rain. Also, clay fill will crack after several dry days and sponsor rodent, fly, and mosquito breeding. The approaches to good sanitary land fills are well known. However, it is the duty of the department of health to be certain that sound engineering planning and operation are practiced in order to avoid public health hazards and nuisances, and to furnish engineering consultation where needed.

In many cities, areas suitable for land fills are being filled at a rapid rate. In others, there is no suitable land. The need for incineration is therefore increasing, with construction proceeding at an all-time high rate in the last decade.

Because of the heterogeneous nature of garbage and refuse, incineration is a difficult problem at best. Mechanical engineers who design the furnaces may be skilled in the art of combustion of homogeneous fuels such as coal and oil, but refuse presents an entirely different problem. Therefore, public works departments should be required to submit plans to the health department prior to construction of incinerators or any other public health structure. Health department engineers must critically evaluate the design criteria, location, stack height, fly ash and air pollution control devices and other factors influencing the successful operation of incinerators. Studies of prevailing winds, wind velocities and air stream patterns should be made before accepting any location for an incinerator, particularly if it will be close to habitation. Improper incinerator design and operation has resulted in creating serious odor and fly

ash nuisances despite large expenditures. Periodic inspection by health department engineers should result in better operation of incinerators and more effective air pollution control.

The public health engineer can utilize the inspection and police powers of the health department to assure enforcement of refuse collection ordinances. This is particularly important where the municipality incinerates combustibles and uses land fills for disposal of noncombustibles and incinerator ash. In many cases the land available for filling is limited in area and must last for many years. Therefore, strict enforcement of segregation rules must be accomplished in order to assure the maximum destruction of organic refuse.

Brookline, Mass., is a municipality in this category. When the incinerator was first placed in operation in 1952, new collection regulations were put into effect. It soon became evident, however, that the land fill was receiving too many combustibles and the incinerator was not doing enough work. The Health Department, under the direction of the sanitary engineer, and with the cooperation of the director of public works, carried out an intensive educational campaign by means of leaflets and newspaper releases. Frequent analyses of refuse quantities were made. After one year, the loading on the incinerator increased by 51 per cent, with a consequent reduction of 53 per cent in the quantities received at the fill.

Similar programs might well pay dividends in other municipalities where close cooperation is in effect between the health and public works departments, providing the sanitary engineer is cognizant of his role in the refuse collection and disposal program of the city, and he has earned the respect and confidence of public works officials.

Helping Other Departments Involved in Public Works—The department of health can prove its desire to be helpful to other departments in many ways, frequently being helpful in technical matters. However, it can be particularly useful to other departments by helping them get sufficient funds from the budget officer where the lack of such moneys may affect the public health.

The department of public works cannot be expected to produce a satisfactory sewage plant effluent unless an adequate number of skilled engineers and technicians are on the payroll. If the budget is inadequate, how will hydrographic studies and biochemical assays be made before plans are drawn up for new treatment plants; how will money be provided for proper meteorological studies before locating an incinerator?

Money must be provided to the operating agency if combined sewer overflow control devices are to function properly. An adequate maintenance staff is needed to be certain that the devices close properly after each rainfall. It is not uncommon for control gates to become obstructed and as a result pass raw sewage, month after month, into the receiving waters, instead of proceeding to the sewage treatment plant. In this instance, a great part of the investment in the treatment plant is negated, and the waters remain polluted despite the treatment plant.

If the water department does not have sufficiently trained personnel, how can it continually seek out and correct serious pollutional hazards on the watersheds, and cross-connections in water treatment plants and in structures which they serve?

When any agency performing work in the field of public health engineering is not provided with ample funds for at least minimum needs, it is incumbent upon the department of health to assist that agency by speaking to the proper authorities in a decisive manner, pointing out the hazards to the public health. In equally decisive manner must the health department fight for ample funds

for its own engineering organization so that it too may do an effective job.

Conclusion

It is no longer popular to say that the health department is a policing agency. Many of us think of policing functions as being directly associated with punitive action. The authors rather like the definition of "policing" as used by the Army, namely, "to clean up." Indeed, one of the functions of the department of health in public works is "to clean up" bad conditions of the environment that affect the public health. However, it is equally responsible for preventing bad situations from getting a foothold in the community.

There is no greater assurance to the successful completion of public works programs affecting the health of the people than the employment of keen, aggressive sanitary engineers, backed up by an intelligent and sympathetic health officer.

Passano Award to Dr. du Vigneaud

The 1955 and 11th annual Passano Foundation Award of $5,000 has been won by Dr. Vincent du Vigneaud, chairman, Department of Biochemistry, Cornell University Medical College, New York, N. Y. The award, made in recognition of Dr. du Vigneaud's "investigation of the chemical and physiologic nature of the hormones of the posterior portion of the pituitary gland," is being presented on June 8 in Atlantic City at the convention of the American Medical Association.

The Passano Foundation, founded in 1943, is supported by the Williams and Wilkins Company, medical publishers of Baltimore.

Dr. du Vigneaud won a Lasker Award of the American Public Health Association in 1948 for "outstanding studies of transmethylation, and for contributions to the chemistry of biotin and penicillin." Of the 14 persons receiving the 11 Passano Awards, all but two have also won the American Public Health Association Lasker Awards.

Pathogenicity and Immunology of Newcastle Disease Virus (NVD) in Man

ALFRED S. EVANS, M.D.

The reader who is not an immunologist will chiefly be impressed by the inherent difficulties in establishing laboratory confirmation of this infectious disease which we are likely to find much more frequently reported in the years to come.

Newcastle disease is primarily an acute infectious disease of fowls with pneumonitis and encephalitis as the predominant clinical manifestations. Known also as avian pneumonencephalitis it was first described in 1926 in the Netherland East Indies [1] and the causative virus was first isolated the following year by Doyle [2] at Newcastle-on-Tyne, England, from which it gets its name.

The possible importance of NDV as a human pathogen became evident as investigations in the laboratory established its striking biologic resemblances to members of the mumps-influenza group of viruses. Important among these similarities were propagation in the amniotic or allantoic sac of embryonated eggs and the agglutination of human and chicken red cells by attachment to receptor sites common to those involved by mumps and influenza viruses. The recognition of NDV as a member of a group of agents important in human illness carried with it the implication that it, too, was a potential pathogen for man. Burnet has stated,[3] "From the human standpoint the ancestry of Newcastle disease virus is of less importance than it, or some similar virus, might on occasion find opportunity for human passage and by appearance and selective survival of appropriate mutants give rise to a new antigenic type of influenza."

The extent to which these potentialities have been as yet realized will be discussed first under virus isolations, second, under immunologic studies.

If anything certain can be said about NDV as a human pathogen, it is that it can produce an acute conjunctivitis. This has been incontrovertibly established in many laboratories throughout the world. Reports of NDV conjunctivitis have appeared from Australia, the United States, Canada, Germany, France, and Italy to mention a few. The virus has been isolated from the eye washings, nasal secretions, and the saliva of such patients, rarely from the blood, and on one occasion from the urine. Clinically, there is an acute granular conjunctivitis, often with preauricular adenopathy, occasionally with fever, chills, headache, and malaise. Respiratory involvement has been slight to absent. NDV conjunctivitis is now recognized as a definite occupational hazard in laboratories or industries working with it or with chickens harboring the virus. Less apparent risk exists for the poultry farmer caring for an infected flock.[4] The immunologic aspects of this infection of man will be discussed in a moment.

Far less certain is the relation of NDV to acute hemolytic anemia in man. Moolten and Clark [5,6] have reported the

isolation of NDV from the blood of three individuals with hemolytic anemia and from two healthy contacts. In addition, herpes simplex is said to have been recovered from the blood of four patients and unidentified hemagglutinating viruses from the blood of nine patients with acute hemolytic anemias. The apparently regular isolation of viruses from human blood raises the question of laboratory contamination, as the authors themselves admit. These observations must be confirmed before they are accepted. Refutation of their positive findings, if appropriate, involves accumulation of a large number of negative experiments. Evidence in this direction has been obtained by Morgan [7] who failed to isolate NDV or any other virus from the blood or extirpated spleen of six patients with acute hemolytic anemia employing several passages through embryonated eggs inoculated by a variety of routes.

There is also a single questionable isolation of NDV from the excised atelectatic lung of a patient who had previously had "virus" pneumonia reported by Balwell, et al.[8]

The immunologic status of NDV in man has been even more confusing. When the problems of nonspecific heat stabile inhibitors of hemagglutination and nonspecific, heat labile inhibitors of neutralization are well mixed with those of immunologic cross-reactions of NDV with mumps and infectious mononucleosis, and topped off by difficulties in methodology, a scramble of information results which is hard indeed to interpret. In groping a way to solid ground, one turns to the cases of conjunctivitis from which NDV has been isolated. Here, to add insult to injury, one finds that the antibody response in serum from such patients has been minimal to absent as measured by changes in neutralization and HI tests and thus cannot serve as a base line for serologic studies. Indeed, evidence of the presence of NDV antibody in human serum as a consequence of exposure under any circumstances of exposure has been slow in emerging.

In 1951, for example, I published the results of a survey of poultry farmers caring for chickens infected with NDV. Using the HI antibody test as the criterion, we found no correlation between this test and exposure to NDV.[4] In contrast to this difficulty of demonstrating components inhibiting NDV in serum of such exposed or infected individuals has been the relative frequency with which they have been found where they were not expected to be. First, the demonstration of a serologic component, now known to be nonspecific and heat labile, led to the erroneous interpretation of neutralization tests carried out on serum of individuals with encephalopathy or influenza-like symptoms,[9] as being causatively related to NDV. Karzon has made extensive studies of this nonspecific component in conjunction with Bang and Foard.[10, 11] Second, sera from some patients during mumps infections show rising CF and HI titers to NDV, and as we have recently found may also inhibit NDV in embryonated eggs. Third, is the peculiar and isolated reaction with serum from some cases of infectious mononucleosis, and a few other infections, notably viral hepatitis, in which very high titers are obtained using red cells rendered stable by exposure to NDV. Neither HI nor neutralizing antibody are detectable in such sera.

A reinvestigation of the immunologic status of individuals exposed to NDV

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therefore seemed in order. The neutralization test was selected as the method of choice. Two aspects of the technic should be emphasized. First, sera were heated at 56° C. for 30 minutes to destroy nonspecific heat labile component. Second, since antibody effect is rapidly lost on dilution of serum when the allantoic route is employed, undiluted serum was mixed with varying dilutions of virus. The magnitude of the dilution effect was such that a 10-fold serum dilution resulted in a 1,000-fold decrease in the amount of virus neutralized. Burnet [12] reported this effect some years ago and it has been recently confirmed independently by others than ourselves.[13, 14] Using undiluted, inactivated serum and varying dilutions of virus to avoid this problem, we performed neutralization tests on serum from 26 individuals exposed to NDV in an experimental laboratory or in a commercial vaccine industry, and on 26 control sera.

Sera from 21 of 26 exposed individuals neutralized more than 10 1D50 doses of NDV, whereas only one serum of the control group neutralized this amount. (As we learned later this exception was a result of a cross-reaction with mumps antibody.) High neutralizing activity, inhibiting over 10,000 1D50, was present in 11 of the sera from exposed individuals. A history of conjunctivitis was elicited in 11 of the total group working with NDV, but was not exclusively correlated with the presence of neutralizing antibody. For example, nine persons gave no history of conjunctivitis, yet their sera contained significant amounts of antibody. The highest titers usually occurred in individuals who inhaled large amounts of NDV during aerosol experiments or in placing lyophilized vaccine into ampules. This latter procedure was also associated with a high incidence of conjunctivitis. Despite frequent and intense exposure by the respiratory route, there was no history of frequent or severe infections of an influenzal nature, though a minor episode of this type might well have been overlooked.

The occurrence of interrelationships between mumps and NDV in complement-fixation and HI tests, already mentioned, raised the possibility of cross-reactions in the present neutralization tests. In experiments with six mumps convalescent sera we found two sera capable of neutralizing NDV. Because of this, all 22 sera containing NDV antibody were tested for mumps neutralizing antibody. Only three contained demonstrable mumps antibody, indicating that NDV antibody existed independently. Further confirmation was obtained by the failure of mumps virus to absorb NDV antibody out of such sera, even using 100-fold concentrated virus preparations. In other experiments, not detailed here, it was possible under some circumstances to distinguish the probable nature of exposure or exposures in sera capable of neutralizing both viruses.

The demonstration that neutralizing antibodies appear as a result of heavy exposure to NDV is in agreement with independant and recent studies of Bang and Foard.[14] Thus, at long last, what everyone would think was perfectly obvious has been experimentally established.

Since so many misinterpretations have been made in the past, to which I also have contributed, the following tentative hypothesis of the pathogenicity and immunology of NDV in man is offered with some hesitation. In my opinion NDV is only capable of producing conjunctivitis in man with its occasionally attendant systemic symptomotology. The possibility of mild respiratory illness due to NDV cannot be entirely excluded, but probably depends on the emergence of variants of greater human pathogenicity by man-to-man passage. This type of spread has not been observed. The

poor antibody response following conjunctivitis may reflect limited local multiplication of NDV which is insufficient to act as a proper antigenic stimulus. The capacity of some mumps immune sera to inhibit NDV may indicate a variable host response, but I favor the explanation that there is more than one strain of mumps virus, at least one of which shares antigens common to those in some strains of NDV.

The interaction of certain infectious mononucleosis sera and NDV can be demonstrated only by the use of red cells altered by this virus. I suggest, therefore, that this represents a chance uncovering of a new antigen on the red cell surface by NDV which renders them agglutinable by such serum on this basis, not the sharing of a common antigen, as in the case of mumps.

Finally, a word about diagnosis. Whenever possible this should rest on isolation of NDV in a laboratory free from possible accidental contamination. An immunologic diagnosis should be made with great care and only after nonspecific inhibitors have been eliminated and the serum has been shown to contain no mumps antibody. A properly conducted neutralization test is, in my opinion, the laboratory technic of choice.

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New Tools in Health Education

WINFIELD G. DOYLE, Ed.D.

The Cleveland Health Museum has a long history of experimenting with more effective ways of visualizing health concepts. Among its most recent attempts has been the production of a series of suitcase exhibits created for classroom use.

The suitcase exhibit idea is an appealing one. If the subject matter is adapted to existing health curricula; if the design is such that the exhibit is easy to carry, unpack, and pack; if the execution of the exhibit combines texture, color, and gadgetry in the right proportions, the result is an attractive versatile self-contained teaching tool suitable for use at many grade levels by many classes many times in the school year.

As one might expect, a project of this magnitude did not spring into full-blown maturity with the birth of an idea. The exhibits represent the combined efforts of many people, starting several years ago with experimental sorties by the museum's School Advisory Committee from the Cleveland Board of Education. Then came a major spurt of growth with a generous gift from the Kiwanis Club of Parma, a suburb of Cleveland, to be used for health education materials in the Parma schools. With the invaluable assistance of the Visual Aids Coordinator of the Parma Board of Education; through the cooperation of several local laboratories and supply houses; and with the advice and counsel of physicians, dentists, nurses, and health educators, the museum's art staff have applied their experience and talents to a series of exhibits which find wide acceptance among health educators and teachers.

The Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association considers a dozen big health problems in the book, Health Education,[1] mastery of which "will go a long way in enabling the teacher to develop health education according to the dictates of his own situation." Of the 12 problems, seven are covered in some basic form by these exhibits. Likewise, in the research study on health interests of children, published in 1947 by the Denver Public Schools,[2] 18 areas of health were identified as falling within the interests and needs of children during their 12 years in school. Five of these 18 areas are covered by the suitcases, with four falling into the one Denver category on structure and function of the body.

Thus, although these exhibits developed out of local demand, they are not confined to a particular school health program. By whatever criteria one chooses to be guided, the subjects are of common concern to school health educators. It is also apparent that a lot of work remains to be done in developing similar exhibits in the other basic health areas not now covered. Therein lies one of the strengths of such a series; it can be expanded to include other topics, or can branch off into special or more detailed considerations of subjects now dealt with in a general way.

There are 14 exhibits in all. The last five are models from the Dickinson birth series, boxed for convenience and protection in their own carrying cases. The series can be roughly, and perhaps somewhat arbitrarily, divided into two groups: those which deal with subjects

involving good health habits, such as grooming, nutrition, and posture; and those which we would consider more anatomical and physiological.

"As Others See You"—The title is printed on a mirror which fits on top of the case when in use. As a pupil looks at the exhibit, he can literally see himself as others see him. We thought the mirror appropriate, too, because much of a person's grooming can be done before a mirror. The exhibit consists of five flaps hinged at the center, so they can swing to the left or right. When all the panels are swung to the left, a rather disheveled, unkempt, uncouth youth appears, with brief descriptions of what his hair, teeth, clothing, nails, and skin should not look like. When all the panels are swung to the right in succession, the same boy finally winds up pretty sharp indeed, with corresponding positive statements about his grooming.

"Foods Can Be Fun" is a wheel with a window in it. As it revolves, colorful groupings of each of the seven basic foods appear through the window in turn. This exhibit can be successfully used as low as the first grade. It is made the more intriguing if the children can re-enforce or correct their own ideas about good eating with paper-doll-type cutouts of foods on a flannel board, and then use the wheel to motivate the choice of a variety of foods, and the sampling of new and unfamiliar ones. When some of these foods can be brought into the classroom for "tasting parties," that motivation is strengthened all the more.

"Rest and Sleep" is a favorite with children because it combines a number of attractive elements. The window shades suggest the familiar act of pulling down the shades in a child's bedroom before retiring. As the shades making up the exhibit are pulled down one by one, the rules for rest and sleep appear, colorfully illustrated. The contemporary world of the child is humorously pictured—television, space suits, pets, animals, even the pop bottle. And the emphasis at the end is on the "why" of adequate rest and sleep.

"Straight and Tall" consists of two panels—one a standing boy, the other a seated girl. The caption over the boy reads: "Stand Like An I"; push the button, and the boy slumps, with a new caption lighting up: "Don't Stand Like An S." Similar before and after captions for the girl read: "Sit Like An L; Don't Sit Like A C."

So much for the exhibits on health habits. Turn now to those in group two, which bring the structure and function of the various parts of the body into the health picture.

"How Blood Travels" combines diagrammatically both pulmonary and systemic circulation, with the heart as the main feature. A knob representing a drop of blood moves in a track cut in a masonite panel. The two atrioventricular valves of the heart are in three dimensions, and work mechanically on springs. They snap back into place after the knob has passed through them, demonstrating the one-way street the blood has to take through the heart. The path of de-oxygenated blood is in blue, whether in veins or arteries, while the oxygenated blood is in red. The heart model is dissectible and is twice normal size.

"Teeth Are to Keep"—Probably the most complex exhibit, from the standpoint of models and accessories, is "Teeth Are to Keep," from the film of the same name. Five of the six removable panels have on one side a series of nutritional elements — calcium, phos-

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phorus, vitamins A, C, and D—which are important for building strong teeth in early life. On the opposite side of these panels, blown-up photographs show the stages in a child's typical visit to the dentist. The sixth panel continues the nutrition story on one side by introducing the "Sweet Saboteur," sugar, and its role in tooth decay. On the reverse side, "Tooth Savers" are depicted as fluoride treatment by the dentist, and fluoridated drinking water. In addition to these panels, the exhibit contains an anatomical model of a molar; an articulated denture; and a few common dental instruments, like a mouth mirror and saliva extractor.

Cheerful color combinations have been used, and frequently the viewer has to do something to the exhibit to make it work. The titles and captions are simple and interest-provoking, if not original.

"How We Hear" shows the pathway taken by sound waves through the ear. Strings leading up from the piano keyboard are merely pointers to show the regions of the three-dimensional plastic cochlea which receive low-, middle-, and high-pitched sounds. The completely dissectible ear model can be used for discussion of the structure of the outer, middle, and inner ears.

Incidentally, the models included in these exhibits—those of the ear, eye, tooth, and heart—are not made by the museum, but are purchased from an outside supply house. All are provided with their own padded boxes which fit into the larger carrying cases behind the exhibit panels.

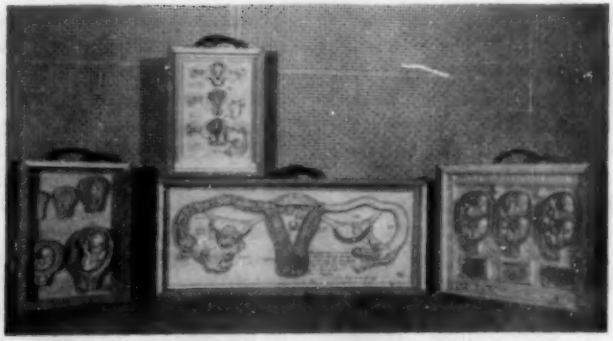
"Why We Need Glasses"—Four eye defects are shown: nearsightedness, farsightedness, astigmatism, and double vision. Diagrams of eyeballs with these defects are shown on the left, while on the right, the same scene has been photographed as it would appear to persons with these defects. Plastic slides hang on pins over the eyeballs to show how the defects are corrected with lenses. These are enlarged and exaggerated to emphasize their shape in cross-section. A dissectible eyeball is included, along with eye testing charts. In the latest version of the exhibit, the testing charts include a Snellen chart, a series of color cards for testing color vision, and a near-vision chart.

These suitcases on the eye and ear not only provide the regular classroom teacher with excellent materials for teaching these units, but also aid the school or public health nurse in her screening and testing. It is an all too familiar experience to see health services completely divorced from health education, when so many fine opportunities present themselves during the course of a school year to combine both. The exhibits on the ear, the eye, and dental hygiene are being used at present in the schools of Parma and Shaker Heights, and are helping to bring the health education program and the school health services closer together for the mutual benefit of each.

A significant development along this line took place last year. In Shaker Heights, another suburb of Cleveland, the Shaker Dads' Club, like the Kiwanis of Parma, bought five of these exhibits. After inservice training demonstrations by the health coordinator, lessons by classroom teachers based on these suitcases were so popular and provocative that the Shaker Heights Board of Education itself purchased two additional units for the current school year and will probably add others in the future.

"How Food Travels"—The digestive tract is painted around a cutout track in the panel. A knob, representing a bolus of food, can be moved through the track. A detailed anatomical chart of the digestive system is also included. It is on a roller which can be hung anywhere in the classroom and stored in its own compartment in the carrying case when not in use.

The exhibits are built in standard



Suitcase Exhibits

Title	Remarks
As Others See You (SE 1)	see above
Foods Can Be Fun (SE 2)	see above
How Blood Travels (SE 3)	with heart model
How Food Travels (SE 4)	with chart of digestive system
How We Hear (SE 5)	with ear model
Rest and Sleep (SE 6)	6 panels; one shown above
Straight and Tall (SE 7)	see above
Teeth Are to Keep (SE 8)	with tooth model and 6 double-sided panels; one shown above
Why We Need Glasses (SE 9)	with eye-testing charts and eye model
Where the Human Egg Travels (SE 10)	female reproductive system
How We Look Before Birth (SE 11)	4, 6, 7 weeks embryos
How We Look Before Birth (SE 12)	first 5 months in utero
How We Are Born (SE 13)	9 stages of birth; not shown above
All About Twins (SE 14)	fraternal and identical twins

sized cases two feet square and vary in depth from six to 12 inches. Thus they are big enough to be seen in the average classroom, and not too big to be awkward to handle. They come equipped with leather carrying handles and weigh from five to 50 pounds.

When the question arose in Parma about how teachers, nurses, and others could learn how to use these exhibits and how to teach from the material presented, the solution proved modern and different. A seven-minute magnetic tape recording for each exhibit was made, describing it in detail and giving teachers pointers on what to stress at different grade levels, as well as suggestions for class projects. These tapes then served as masters from which a set for each school was "dubbed." Now, when an exhibit comes into a building, the teacher can go to the principal's office, play the tape, and review the subject matter before using the exhibit in her class. When a school system does not want to go to the expense of having tapes made, the same material is made available as a teacher's manual in mimeographed form.

One of the early collections acquired by the Cleveland Health Museum was the Dickinson-Belskie birth models. Many are used in health departments, hospitals, and universities. With the demand so heavy in our community for materials in family life education, we have begun to put some of the models from the Dickinson collection into suitcase form. One model shows the general anatomy of the female reproductive system, and has proved popular and versatile in discussing such topics as menstruation, ovulation, fertilization, nidation, and very early embryology. The second and third models continue the story of development, revealing the fourth, sixth, and seventh week embryos, both in utero and in enlarged form eight times normal size. Five models show embryos and fetuses at each stage of development during the first five months. The fourth- and fifth-month fetuses are removable. A large panel shows, by means of half life size sculptures in bas-relief, nine stages of birth. Labeled diagrams of each of the models are mounted on the inside of the doors.

Last in this birth series is the twinning panel where the biological differences between fraternal and identical twins can be clearly explained and demonstrated. This often leads to a discussion of other types of multiple births, and to questions about human heredity. We hope to have a unit on heredity ready soon to add to this series.

The use of portable exhibits for classroom use is not new. So far as we can determine, however, these suitcases are unique in the area of health education generally and specifically in school health. We do not know all the answers by any means. We are still very much in the experimental stages with these materials. But we do know that as more people see and learn about them, the base for their use broadens. We all know how invaluable, even indispensable, visual aids are in supporting and illustrating the spoken word. The suitcase exhibit extends the use of such visual aids by combining them with special exhibit materials.

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Use of a Review Committee in the Evaluation of a Program for Handicapped Children

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In the care of any handicapped group institutionalization is a hazard to be watched for and guarded against. Results achieved in one city are recounted here in useful detail.

One of the basic needs in any program or service for patients with chronic illness is that of careful and frequent evaluation of the condition of each patient, so that as his condition and needs change the required services may be modified accordingly. This is true whether the patient is in a hospital for acute cases, is in a "long-term institution," is homebound, is attending a special class in a school for handicapped children, or is receiving medical and ancillary care on an outpatient basis. All too often in the field of long-term illness, some degree of interest in the patient has been lost, or his condition has been considered static; whereas by careful periodic evaluation and implementation of treatment and management of the patient, evident improvement has been made possible.

In the New York City program for handicapped children steps have been taken by the Bureau for Handicapped Children during the past three years to strengthen and assure more careful and continuous evaluations of patients and their needs. Some of these steps include: (1) a team evaluation of the group of children with orthopedic handicaps who are homebound; (2) personal annual evaluation by a qualified specialist for children in special orthopedic, cardiac, sight conservation and Braille classes in the public schools; and (3) a tri-monthly evaluation of children enrolled in the special classes in public schools for children with cerebral palsy.

Steps have also been taken in the Medical Rehabilitation payment program for handicapped children aimed at improving the care to the patient including: (1) the development of a hospital consultation program designed to assist the participating institutions to improve the quality of patient care; (2) the development of uniform policies in the administration of the program, so that staff members of the bureau and of the participating institutions will be familiar with the policies; (3) the reduction of approvals for convalescent care from a routine period of 365 days to a period of 90 days, and for hospital care from a routine period of 90 days to the period required by the individual

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patient's condition; and (4) the development of a "Review Committee."

This report will describe the functioning of the Review Committee in the New York City program for handicapped children, and the results of its activities during the first six months of its existence.

Reason for Development of the Review Committee

In the spring of 1953 the Bureau for Handicapped Children of the New York City Health Department was requested by a state agency to survey an 80-bed convalescent institution for orthopedically handicapped children in the city. At the same time the director of a private philanthropic foundation made a similar request. The survey of the institution which was made by staff members of the bureau, revealed that approximately half the 38 children in the institution probably did not require inpatient care and might be discharged home and treated on an outpatient basis.

The institution was located in a somewhat isolated section of the city, requiring about one and a half hours of travel time on the part of the key medical personnel. Rounds by the orthopedic and physiatry staffs were made separately once a month. Pediatric care was designed only for pediatric emergencies and illnesses. The administrator of the institution had not had training in any aspect of child care. The rest of the trained professional staff consisted of one registered nurse on each tour of duty around the clock. There was one unqualified physical therapist, and no occupational therapy staff, dietitian, psychologist, social worker, or psychiatric staff. Medical records were incomplete, and those provided were kept locked in a file cabinet in the administrator's office, and not easily available to the nonmedical staff members. The general housekeeping in the institution was poor; it was drab, dreary and dirty. The most cheerful and attractively decorated room was the private dining room used by the administrator. The annual budget of the institution was $160,000, of which $120,000 was provided by the Medical Rehabilitation Program of the Bureau for Handicapped Children.

As a result of this survey and its findings, the Bureau for Handicapped Children requested a complete current medical evaluation of each child, and a current social service evaluation of each family. Over a three-month period, these evaluations were made by the staff members of the convalescent institution and its affiliated hospital, and were carefully reviewed by key staff members of the Bureau for Handicapped Children. Of the 38 children, 27 (71 per cent) were discharged home within three months, six were transferred to another convalescent institution, and five required hospital care and were transferred to a hospital. Of the 38 children receiving inpatient care there, a total of 25,375 patient-days had been paid for by the program, or an average of 667.7 days per patient. A total of $173,159 had been paid by the program for the care of the 38 children, or an average of $4,568.16 per child at that time.

The experience with this institution, together with surveys of orthopedic services of participating institutions under the Medical Rehabilitation Program, demonstrated the need for a more careful and frequent evaluation and review of all children whose care is being paid for by the program. Thus the Review Committee was born. It was decided that the Review Committee would in its first phase study three types of cases: (1) all children for whom at least 365 days of inpatient care had been provided under the program; (2) all children for whose care application was being made from a "problem institution" as determined by the hospital consulta-

tion program; and (3) any child with a special problem needing considerable help.

The remainder of this report will present the activities of the Review Committee from June through December, 1953, a six-month period.

Activities and Results of the Review Committee

During the six-month period (June–December, 1953), 210 patients were reviewed by the Review Committee. Table 1 presents the data on patients, patient-days, and program payments by individual institutions for the 210 patients reviewed. A total of 120,683 patient-days had been provided, or an average of 574.7 per patient.

A total of $883,091 had been authorized, or an average of $4,206.62 per patient. There were 20 institutions involved, of which 10 had cared for 180 (86 per cent) of the patients. The longest length of inpatient stay was for a nine-year-old boy who had been in a convalescent institution for 2,010 days, and for whom $12,422 had been paid by the program at the time of the first review of the Review Committee. All institutions approved for participation in the orthopedic phase of the Medical Rehabilitation Program were involved

Table 1—Analysis of Patient-Days and Payment by Institution

Institution	No. of Patients	Total No. of Patient-Days	Average No. of Patient-Days	Total Amount BHC Payments	Average Amount BHC Payments
Convalescent					
I	38	25,375	667.7	$173,159	$4,568.16
II	35	25,186	719.6	163,826	4,680.74
III	20	12,923	646.1	87,708	4,385.40
IV	16	10,765	672.8	76,082	4,755.12
V	12	2,630	219.2	22,793	1,899.42
VI	1	716	716.0	5,162	5,162.00
Totals	122	77,595	636.0	$528,730	$4,333.87
Hospital					
I	11	7,394	672.2	$ 61,884	$5,625.82
II	11	7,325	665.9	48,891	4,444.64
III	12	5,910	492.5	56,064	4,672.00
IV	9	5,534	614.9	41,634	4,626.00
V	9	5,203	578.1	48,511	5,390.11
VI	14	5,018	358.4	42,102	3,007.28
VII	11	3,966	360.5	32,475	2,952.27
VIII	1	998	998.0	7,985	7,985.00
IX	3	854	284.7	8,626	2,875.33
X	1	466	466.0	2,179	2,179.00
XI	2	320	160.0	4,010	2,005.00
XII	2	0	0	0	0
Total	86	43,088	500.1	$354,361	$4,120.48
Detached Clinic	2	0	0	0	0
Grand Totals	210	120,683	574.7	$883,091	$4,206.62

in this review except four hospitals and two convalescent institutions, from which as a general rule few applications are received. Of the ten institutions caring for 86 per cent of the patients, five are classified as "convalescent institutions" and cared for 121 patients (57.6 per cent). The variation among individual institutions in regard to length of stay and average payment per patient is apparent. Approximately half the total funds authorized went to three convalescent institutions.

The diagnosis of the total group is shown in Table 2. Six diagnostic groups (cerebral palsy, Perthes's disease, congenital dislocation of the hip, tuberculosis of bone and joint, poliomyelitis, and paraplegia) comprise 158 (73.3 per cent) of the total 210 patients, with a wide variety of other diagnoses represented by a small number of patients. All patients reviewed may be classified as having an orthopedic handicap except two requiring plastic surgery because of contractures and scars due to burns.

Table 2—Total Group—Diagnosis

Diagnosis	No.	Per cent of Total
Cerebral palsy	59	28.1
Perthes's disease	40	19.0
Congenital dislocation of hip	18	8.6
Tuberculosis	15	7.1
Poliomyelitis	11	5.2
Paraplegia	11	5.2
Scoliosis	9	4.3
Osteomyelitis	8	3.8
Slipped epiphysis	7	3.3
Arthrogryposis	5	2.4
Amyotonia congenita	3	1.4
Coxa vara	2	1.0
Rheumatoid arthritis	2	1.0
Scars due to burns	2	1.0
Club feet	2	1.0
Miscellaneous	16	7.6
Total	210	100.0

Where the numbers of patients are large enough to be of statistical significance, the longest length of stay occurred in patients with arthrogryposis and the shortest length of stay in patients with slipped upper femoral epiphysis. Approximately half of the funds authorized occurred in two diagnostic groups—cerebral palsy and Perthes's disease (Table 3).

In the six-month period during which the Review Committee functioned, 210 patients were reviewed 378 times, or an average of 1.8 reviews per child. The number of times the children were reviewed and the type of care applied for are shown in Table 4. After the first review of the total group of 210 children, half the group required a second review, and a quarter required a third review. Only a very small percentage of the group had a fourth, fifth, or sixth restudy by the Review Committee. Of a total of 378 items of service applied for, convalescent care was applied for in 217 instances (59 per cent), and hospital care in 127 instances (32 per cent). (Table 4.)

Of the 210 patients seen for the first time by the Review Committee, 104 or approximately half were approved, 52 were disapproved, and for 54 further information was requested. Of the 100 patients reviewed a second time, 73 were approved, 17 disapproved, and for 10 further information was requested. Of the 50 patients reviewed a third time, 32 were approved, eight disapproved, and for ten further information was requested. Of the 14 patients reviewed a fourth time, 11 were approved, and three disapproved. Of the three patients reviewed a fifth time, one was approved and two disapproved. Only one patient was reviewed a sixth time, and care for him was disapproved. Many of the actions of approval, disapproval or requests for further information also carried specific recommendations or suggestions about the further possible

Table 3—Analysis of Patient-Days and Payments by Diagnosis

Diagnosis	No. of Patients	Total No. of Patient-Days	Average No. of Patient-Days	Total Amount BHC Payments	Average Amount BHC Payments
Cerebral palsy	59	37,699	638.9	$260,277	$4,411.47
Perthes's disease	40	26,113	652.8	171,249	4,281.22
Congenital dislocation of hip	18	10,186	565.9	93,753	5,208.50
Tuberculosis	15	9,839	655.9	72,921	4,861.40
Poliomyelitis	11	4,709	428.1	36,154	3,286.73
Scoliosis	9	4,002	444.7	29,769	3,307.67
Osteomyelitis	8	4,416	552.0	34,400	4,300.00
Slipped epiphysis	7	1,402	200.3	11,945	1,706.43
Arthrogryposis	5	4,053	810.6	29,224	5,844.80
Amyotonia congenita	3	2,194	731.3	13,426	4,475.33
Coxa vara	2	504	252.0	5,166	2,583.00
Rheumatoid, arthritis	2	2,508	1,254.0	14,156	7,078.00
Scars due to burns	2	150	75.0	1,770	885.00
Club feet	2	641	320.5	6,317	3,258.50
Paraplegia	11	6,905	627.7	54,713	4,973.91
Miscellaneous	16	4,362	272.6	47,851	2,990.69
Total	210	120,683	574.7	$883,091	$4,206.62

ultimate management or disposition of the patients.

Of the 210 patients covered by the Review Committee, 48 (23 per cent) were recommended for discharge home; of this group 47 were actually discharged home. In addition, 37 children (18 per cent of the total group reviewed and 63 per cent of the cerebral palsy group reviewed) were recommended for screening for possible admission to a special class for cerebral palsied children in the public schools in the city. Of this group, seven children had already been screened and four children were actually admitted to such a class; one child was placed on the waiting list for admission. In addition, two children,

Table 4—Type of Care Applied for Inpatients

Review	Type of Institution		Item of Service Requested				
	Convalescent	Hospital	Brace	Wheel Chair	Shoes	Other	Total
1st	110	74	15	4	3	4 *	210
2nd	59	36	3	1		1 †	100
3rd	34	14	1		1		50
4th	10	3		1			14
5th	3						3
6th	1						1
Total	217	127	19	6	4	5	378

* Consists of one each of ambulance, artificial limb, hospital plus ambulance, and help in planning inpatient care.

† Consists of artificial limb.

who were screened for admission to a special cerebral palsy school unit, were found to be too mildly handicapped and were admitted to an orthopedic class in the public school system. Fifteen children (7 per cent) were recommended for another type of care. Eight children in hospitals were recommended for transfer to a convalescent institution, two children were recommended for discharge and foster home placement, two children who were severely mentally retarded were recommended for admission to a state institution for the mentally retarded, two children in convalescent institutions were recommended for hospital care, and one blind child was recommended for admission to a residential school for the blind.

A further analysis of action taken by the Review Committee was done by individual institutions. Of the five institutions with the highest percentage of approvals for care, four represent the large and better inpatient orthopedic services in hospitals. Of the five institutions with the highest percentages of disapprovals, three represent convalescent institutions and two represent "problem hospitals." Of the institutions from which additional data were requested most frequently, three represent convalescent institutions and two represent "problem hospitals." Of the institutions with the highest percentage of patients recommended for discharge, three are convalescent institutions, and one a "problem hospital."

Discussion

In the first six months of the Review Committee 210 children were seen at least once, and 48 per cent were recommended for change in care as follows: Forty-eight children (23 per cent) were recommended for discharge home; 37 (18 per cent) were recommended for screening for admission to special school units in public schools for children with cerebral palsy; and 15 children (7 per cent) were recommended for placement in another type of situation. The fact that these results were achieved so quickly by the use of this Review Committee would clearly indicate the value of this type of technic in the administration of a program for handicapped children.

The basic problem in this group of children reviewed to date would clearly appear to be in the area of over-institutionalization, for which there are some known factors. One of the primary factors of over-institutionalization is the lack of continuous medical supervision by the medical specialists concerned. This is not usually related to the quality of the medical specialists on the staff of the individual institutions, but rather to the amount of time given by them. Another possible factor is that, because many of these patients have a long-term illness, long-term inpatient care has somewhat been taken for granted. Because the care of patients with long-term illness has so many facets, it would appear that the most effective approach is the use of a coordinated team representing all professional disciplines concerned with the rehabilitation of the patient.

Another influencing factor has been the lack in some institutions of an adequate social service staff, qualitatively, quantitatively, or both, to work with the family of a child who is receiving outpatient care or immediately upon admission of the child to an inpatient service. Many of the children with long-term illness cared for under the Medical Rehabilitation Program of the Bureau for Handicapped Children belong to families with deep and serious social problems. For example, broken homes, alcoholism, divorce or separation, rejection of the child, etc., are not uncommon problems. If a program for handicapped children is to be truly effective for the early and maximum rehabilita-

tion of the child in the broadest sense, the social and emotional problems of the child and his family must be adequately recognized and coped with. These factors are in addition closely allied with other problems such as the need for adequate housing and the need for a foster home program for handicapped children in the community.

The undesirable results of unnecessary institutionalization or over-institutionalization of any patient fall into two areas—wastage of funds (to pay for inpatient care) and potential psychological damage to the child (from the viewpoint of separation from his family and siblings and inability to participate in a normal family life). Even the best institution cannot provide the intangibles given by one's own family, or a substitute family in a good foster home.

The fact that at the time of the first review of the 210 children the committee was unable to reach an opinion on the basis of available information in 54 children (26 per cent) is significant. This pattern was also true in subsequent reviews; at the second review, the percentage was 10 per cent, and at the third review it was 20 per cent. These facts merely reflect the general need for the institutional staff to provide more complete information about each child at the time application for care under the Medical Rehabilitation Program is submitted. In other instances it is again a reflection of incomplete evaluation of each child on a periodic basis. One interesting by-product of the Review Committee's activities even in the first six-month period has been the receipt of more complete information on each child in the general Medical Rehabilitation Program.

Another interesting by-product of the Review Committee's activities will be the probable effect on the type and number of services provided for handicapped children. For example, in the normal course of events, it may be that fewer inpatient beds for children with orthopedic handicaps will be needed, both in hospitals and in convalescent institutions. It may also mean an added need to strengthen the outpatient services and the need to provide more special services in the public schools for children with many types of orthopedic handicaps, including cerebral palsy, who cannot be accommodated in school at the present time.

The fact that three convalescent institutions represent 53 per cent of the total patient-days and 48 per cent of the total expenditures for this group of 210 children is significant. It is particularly important because, in the opinion of the authors, the role of a convalescent institution in a program for handicapped children has not been clearly defined, nor are its purposes, functions and services clear. It is likely that the entire subject of "convalescent care" for such children must be carefully evaluated.

Summary

This report describes the activities and results of a Review Committee in a Medical Rehabilitation Program. During the six-month period covered by this report, records of 210 children were reviewed. At the time of the first review, a total of 120,683 inpatient days had been provided under the program, or an average of 575 per child, and $883,091 had been approved (an average of $4,206 per child.) Of the 210 children, 23 per cent were recommended for discharge home, 18 per cent for screening for admission to special school units for cerebral-palsied children, and 7 per cent for other types of care.

The implications of the technic of a Review Committee in a Medical Rehabilitation Program are discussed from the viewpoints of institutionalization, planning services for handicapped children in the community, the need for defining the role of "convalescent institutions,"

and the need for considerable information about each institution. An evaluation of the results of the Review Committee at the end of a six-month period demonstrated to the staff of the Bureau for Handicapped Children the value of this approach. As a result, the committee reduced the time for review of applications for care from one year to nine months, and more recently to six months. It might also be pointed out that the activities of the Review Committee required no additional staff and no additional expenditure of funds for the administration of the rehabilitation program.

Cortisone, ACTH, and Aspirin in Rheumatic Fever

A comparative study conducted in 13 hospitals and local centers in the United States, Canada, and England concludes that cortisone and ACTH have no advantages over aspirin in the treatment of acute rheumatic fever. The study was sponsored by the American Heart Association, the Public Health Service, the British Medical Research Council, the Canadian Arthritis and Rheumatism Society, and other groups. Approximately 750 patients of all ages were assigned at random to treatment with one of the three drugs. Each drug was given for six weeks according to a carefully defined schedule, with detailed observation continuing for three weeks more. Follow-up examinations were made at scheduled times for one year after the initial nine-week period. The report, "The Treatment of Acute Rheumatic Fever in Children," was published simultaneously in the March issue of "Circulation" and the March ninth issue of the British Medical Journal.

Epidemiology of Infectious Hepatitis: Observations on a School Outbreak

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This paper reviews certain features of the epidemiology of infectious hepatitis, illustrating some of them by describing an outbreak recently investigated by the author.

Infectious hepatitis is a major public health problem in the United States as it is in many other countries.[1] Its military importance has been recognized for over two hundred years. It seriously hampered our fighting strength in World War I, World War II, and the Korean conflict.[2] In the United States infectious hepatitis is one of the most rapidly increasing communicable diseases. The number of reported cases has doubled each year for the past four years and provisional reports indicate that this rate of increase is continuing in 1954. More than 33,000 cases were reported in 1953. Some of the increase is undoubtedly due to better reporting, but epidemiologic information on outbreaks reported during 1953 indicates that there is also a real rise.[3]

Although this disease has been recognized as a clinical entity for many years, most of the epidemiologic knowledge concerning it is relatively recent. Evidence regarding its viral etiology and its fecal-oral transmission was gained about ten years ago in a series of classic experiments with human volunteers.[4–6] These original observations were subsequently confirmed many times. World War II afforded the opportunity to accumulate and study thousands of case histories of infectious hepatitis.[7]

The outbreak presented here occurred in a suburb of Detroit, Mich., during the last three months of 1953 and the first two months of 1954. This seasonal pattern of increased incidence during the winter months has long been noted, but remains unexplained.[6] The community involved is primarily a residential one with a population of approximately 30,000. It receives its water supply from Detroit and it utilizes a municipal sewage disposal system. Prior to this outbreak, only two cases of infectious hepatitis had been reported in this community during 1953, and correspondingly few cases had been reported in surrounding areas.

The Wayne County Department of Health became aware of the situation early in January, 1954, when the principal of a public school in the affected community reported that several students and one teacher were absent from school because of jaundice. Investigation began by establishing a diagnosis in each suspected case. This was done by interviewing school authorities, patients, parents of patients, and attending physicians. To decrease the probability of erroneous diagnosis, individuals without definite clinical or laboratory evi-

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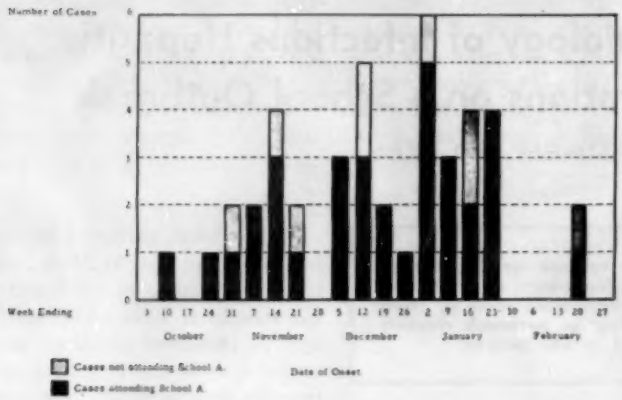
This paper was presented before a Joint Session of the Engineering, Epidemiology, Food and Nutrition, and Laboratory Sections of the American Public Health Association at the Eighty-Second Annual Meeting in Buffalo, N. Y., October 13, 1954.

Figure 1—Distribution of Cases by Week of Onset



dence of liver involvement were not considered cases. Had these individuals been included, the number of cases would have been substantially greater. (Estimates of the incidence of infectious hepatitis without jaundice range from 27 per cent [5] to 91 per cent.[8]) The diagnosis of infectious hepatitis was confirmed in 14 cases by mid-January.

It was then deemed essential to search for additional cases in the community. With the assistance and cooperation of local health and school authorities this was done by interviewing students and teachers who had been absent from school because of any illness during the preceding three months and by consulting local physicians, clinics, and hospitals. The known cases and their parents were asked if they knew of other cases. By the end of January the search revealed that 40 cases of infectious hepatitis had occurred in this community during the preceding four months. During February two more cases were reported. The chronologic distribution of all cases is shown in Figure 1.

The age and sex distributions of all cases is shown in Table 1. As observed in other outbreaks, the incidence was greatest among children of school age which may be partially due to more intense case finding in school populations. The predominance of male cases could not be explained. (In another recently reported outbreak, female attack rates were significantly higher than the male rates.[9])

Considering the 36 cases that occurred among school children (Table 2), it is apparent that the outbreak was localized among those attending one of the community's 11 schools. Another case was a teacher at this school, and four additional cases were household contacts of one or more of the cases that occurred among the students at this school.

In addition to case finding, the interviews and consultations served other purposes. They yielded epidemiologic

Table 1—Distribution of Cases by Age and Sex

Age Group (Years)	Male	Female	Total
0 – 4	0	0	0
5 – 9	9	6	15
10 –14	14	6	20
15 plus	3	4	7
Total	26	16	42

Table 2—Distribution of Cases by School of Attendance

School	Enrollment	Cases	Attack Rate Per cent
A	870	32	3.7
B	613	2	0.3
C	574	2	0.3
Others	8,403	0	0.0

information that eliminated certain transmission possibilities, such as parenteral injections, food, and milk. They afforded the opportunity to encourage patients and their contacts to maintain good personal hygiene. Private physicians were made aware of the increased incidence of infectious hepatitis and the importance of reporting new cases promptly. Prophylactic administration of gamma globulin was advised for the household contacts of patients. Furthermore, these direct professional and public contacts helped allay the fear and misunderstanding that develop in a community experiencing the relatively sudden appearance of a serious disease.

Since all of the initial cases attended the same school, the sanitary facilities of this school were surveyed early in the investigation. As in many schools, plumbing facilities for handwashing were available, but soap and towels were often lacking. School authorities were advised to initiate a vigorous personal hygiene campaign, particularly stressing handwashing after urination or defecation and before eating. The role of proper handwashing was recently emphasized by an epidemic of infectious hepatitis controlled by this measure.[10]

Several situations were uncovered that suggested the possibility of the backsiphonage of sewage into the school's water supply. For priming purposes, a water line was connected directly to a sump pump. It seems logical to assume that sewage could leak through the intervening valve and enter the school's water supply, particularly if the valve was not tightly closed. Samples drawn from the water line near this connection contained coliform organisms, one of these samples having an MPN of 1,600. Other potential sources of contamination that were noted included a drinking fountain with its water line entering through its drain, inadequate sink drainage, and toilets with flushometer-type valves without vacuum breakers. It cannot be proved that the conditions just described were partially responsible for the transmission of disease in this outbreak. In fact, the distribution of the cases suggests primarily a person-to-person spread rather than common vehicle transmission. It is certain, however, that any of the defects noted could have intermittently permitted sewage to enter the school's water supply.

There are several reasons why the possibility of water-borne transmission must be considered in every outbreak of infectious hepatitis. First, the virus is extremely resistant to ordinary methods of water purification.[11, 12] Second, experimental studies have shown that minute amounts of infective excreta can cause the disease when taken orally. Human volunteers have developed it from as little as a 10^{-20} dilution of infected feces.[13] In addition, it has been demonstrated that convalescent and chronic carriers exist.[14] These individuals may continue to excrete the virus for months or years after their initial infection. Identifying these carriers is a difficult task for they may have been inapparent or subclinical cases originally. Furthermore, there is no practical method of demonstrating the virus in stool specimens.

Approximately three months after the onset of the last reported cases, the household contacts of all cases were again interviewed to evaluate the prophylactic effect of gamma globulin.

Among the 67 contacts who received gamma globulin one case had occurred, but this individual had received it four days prior to the onset of the disease. As Neefe and Stokes observed 10 years ago, gamma globulin is most effective as a preventive agent when administered early in the incubation period of the disease.[15] Among the 64 contacts who did not receive gamma globulin, four cases occurred. In terms of secondary attack rates, 1.5 per cent of those who received gamma globulin developed infectious hepatitis, whereas 6.2 per cent of those who did not receive gamma globulin developed the disease. These rates are similar to those recently reported by Lilienfeld, Bross, and Sartwell.[9]

In summary, the outbreak reported in this paper emphasizes the following epidemiologic characteristics of infectious hepatitis:

Due to subclinical infections, nonspecific laboratory tests, varying clinical manifestations, and poor reporting, the true incidence of infectious hepatitis is difficult to determine. Good personal hygiene and the proper disposal of sewage are of utmost importance in its control.

Children are attacked more frequently than adults, a factor aiding the transmission of this infection. Gamma globulin is an effective prophylactic agent when administered prior to the prodromal stage of the disease.

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First Alaska Local Health Unit Law

The Alaska Territorial Legislature has passed enabling legislation for local health districts. Under the law a health district of two or more local governments may be formed by referendum of the people concerned. A local board of health is provided for, with financing through taxation by the participating governments. Grants-in-aid from the Alaska Department of Health are authorized.

Since the Organic Act of the Territory prohibits the formation of counties, the local health district may be made up of two or more municipalities, school districts, or public utility districts.

Canada's Laboratory and Radiological Services Grant

FREDERICK W. JACKSON, M.D., D.P.H., F.A.P.H.A.

Rightfully we are greatly interested in any pioneering that Canada may do in strengthening public health administrative practices. An imaginary line is the thinnest possible boundary when it separates people and social conditions that prove to be much the same on both sides. Some explorations into the possibilities of providing adequate laboratory services are pictured all too briefly here.

To understand the place of the Laboratory and Radiological Services Grant in Canada's National Health Program, it is necessary to discuss briefly the sequence of events that led up to its announcement on May 1, 1953. When the second world war was drawing to a close the then Government of Canada began preparations for the return of the Canadian people to a peacetime economy. This culminated in the calling of a Dominion-Provincial Conference on Reconstruction in August, 1945. Part of the proposals made to the provinces by the federal government during the conference consisted of a National Health Program to be administered by the provinces with the federal government providing over 60 per cent of the total cost. The health program consisted of three parts: (1) Health grants for certain specific purposes; (2) assistance toward hospital construction in the form of low interest bearing loans; and (3) health insurance (one item of which was diagnostic services). In 1946 the conference broke down because of the reluctance of certain provinces to agree to the suggested fiscal arrangements.

In 1948 the federal government decided to offer to the provinces the first two parts of the 1945–1946 proposals in the form of a Health Grants Program, including a grant for hospital construction, to take the place of low interest loans. This commitment was to total when fully operative over $36,000,000 a year. All the provinces accepted this proposal. In announcing the plan in May, 1948, the then Prime Minister of Canada, the late Right Honorable W. L. Mackenzie King, stated: [1] "These measures also represent first stages in the development of a comprehensive health insurance plan for all Canada."

One of the requirements of the 1948 Health Grants Program was that there should be a review of the Hospital Construction Grant at the end of five years, it being expected that if the objective of 40,000 additional hospital beds was reached, the commitment for hospital construction might be materially reduced. When the review of this grant was made in 1952–1953, it appeared that it could be reduced by 50 per cent.

The government decided that the money no longer required for hospital construction should be used to establish three new grants: the Child and Ma-

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ternal Health Grant; the Medical Rehabilitation Grant; and the Laboratory and Radiological Services Grant. One of the reasons for including the last named grant was that each province in its Health Survey Report had recommended better diagnostic services as a prime requisite for the improvement of its over-all health program.

The amount of the grant is 30 cents per capita for the first year, increasing by 5 cents each year to a maximum of 50 cents per capita, this to be matched by the province. It is for the purpose "of assisting the Provinces in establishing a satisfactory plan or program for the provision of either or both laboratory and radiological diagnostic facilities and services, including the purchase of equipment, the training of personnel and the conduct of surveys and studies." For the purchase of equipment and the training of personnel during the first two years of operation of the grant projects can be submitted on a nonmatching basis. The preparation of the provincial program and the supervision and operation of the services is the responsibility of the province which must undertake to maintain at least the standard and extent of its diagnostic services and the level of expenditures therefor that existed as of March 31, 1953.

The Laboratory and Radiological Services Grant is directed toward the fulfillment of three basic aims: (1) The improvement of the quality and the availability of diagnostic services, and thus the improvement of medical care in general; (2) better distribution of medical manpower by providing laboratory and x-ray facilities to areas not already served, thus enabling physicians to practice scientific medicine in rural areas; and (3) the reduction of personal expenditures for diagnostic services. Laboratory and Radiological Diagnostic Services are defined as those procedures that are ordinarily requested by a registered medical practitioner for the purpose of assisting him to diagnose the presence, absence, or status of disease, defect, or disability, and which are performed by workers employed in institutions approved by the provincial authority.

Under the National Health Program there is one overriding condition, namely, that services assisted from grant funds should be provided to the public at not more than cost. The Honorable Paul Martin, Canada's minister of national health and welfare, in announcing the new grants to the House of Commons on May 1, 1953, speaking of the Laboratory and Radiological Services Grant, said in part:[2] "Let me stress the importance in all these developments of maintaining the traditional doctor-patient relationship. There is no thought of regimentation or centralization of personal health services. We do not want to see in Canada any barrier imposed between doctor and patient, for that would lessen the doctor's effectiveness and the patient would inevitably suffer. The purpose of this grant is rather to strengthen the physician's hand, since he is most immediately responsible for the health of the patient. In that way we hope to bring greater and more direct assistance to the people themselves."

The first problem that arose after the grant became operative was to establish a level of expenditures for diagnostic services in the provinces as of March 31, 1953. For instance, all the provinces of Canada make direct payments to hospitals to help defray the cost of indigent patients. So it was necessary to determine what percentage of such payments could legitimately be claimed by a province as an expenditure toward the provision of laboratory and radiological services. It was finally agreed, after careful consideration by all parties concerned, that 10 per cent of the moneys expended in hospital grants and other payments for indigent patients by the

provinces was a satisfactory figure to use as the provincial cost of providing diagnostic services.

We then had to ascertain, by going over in detail the work of the various provincial public health laboratories, the percentage of their activities that could be claimed as expenditures under the provisions of this grant. The figures showed that 60–80 per cent of the services currently being provided by provincial laboratories were medical diagnostic procedures.

With the inauguration of the 1948 grants program all the provinces had funds available to improve and extend their public health and diagnostic laboratory services by the purchase of equipment and the employment of personnel where such were available. Six of the 10 provinces have at their own request had surveys of their present facilities made by the Laboratory of Hygiene of the Department of National Health and Welfare. The recommendations as to how these may best be improved have stressed the necessity of regionalization. One feels sure that this recommendation will be implemented by all the provinces.

The real obstacle we have to overcome is that of obtaining enough properly trained personnel to provide the services. Funds available under this grant are being used to train the medical specialists and other personnel required to insure a high quality service. In every province there are now increased training programs for medical staffs and for technicians. New types of courses are being developed, particularly to provide less highly qualified personnel who can be used in smaller hospitals. A good many of those being trained are "combined technicians," having training in both laboratory and radiological technical procedures. We think that for work in most of the smaller hospitals, under good supervision, this type of technician will prove quite competent. They have been used in Manitoba for seven years and have been found quite satisfactory by the radiologists and the pathologists in charge of the services.

Whether or not a province wishes to provide diagnostic services free or on a capitation prepaid basis, or on a fee-for-services rendered basis, is entirely up to the province. In one province (Manitoba) provision is made to provide these services from tax funds, municipal, provincial, and federal, and this seems to work exceedingly well.

The operation of prepaid diagnostic services in Manitoba, which started in March, 1947, six years before this grant became operative, is fully described by Dr. Elliott, the deputy minister of health for that province, in a paper presented at the meeting of the Canadian Public Health Association in Toronto in October, 1953. Dr. Elliott stated, in part: [3] "Very soon (after the inauguration of the plan) the Department began receiving requests from other areas to provide similar services. It became a prime factor in the development of hospitalization plans for any district hospital, and since 1948 no district hospital has been built . . . without making full provision in the plans and specifications for the service. Our expansion has been limited only by the availability of qualified technical and professional staff. . . . We have resolutions from literally dozens of municipalities asking that this service be extended to their residents. As a preliminary step in this direction, the Department, through the assistance of Federal Health Grants, has provided X-ray and some laboratory equipment in 15 additional district hospitals, and smaller portable X-ray units in about 20 more Medical Nursing Units or small cottage hospitals. The Boards of these districts have all agreed in writing that they will become part of a Laboratory and X-ray Unit when such prepaid services can be provided. In the meantime, the equipment is operated by the hospital boards, on a

modified fee-for-service basis, sufficient only to meet all operating costs. . . .

"The plan for provision of prepaid laboratory and X-ray services is, we think, well established in Manitoba. Its extension depends only on availability of qualified staff. We feel it has already demonstrated that it can meet its original objectives. It has raised the standard of practice in these rural areas. It is an inducement for the young and modern medical practitioner to practice in rural areas. It has raised the standard in rural hospitals. It has provided the advantages of modern scientific diagnostic services, close at hand, at a cost much less than would have been possible otherwise. It is a public health measure which is here to stay."

The problem of providing adequate laboratory and radiological diagnostic services on a provincial basis to all the population is going to be simpler in some provinces than it is in Manitoba. I refer particularly to those provinces which have prepaid hospitalization plans, namely, Saskatchewan and British Columbia, where diagnostic services are now being provided for hospital inpatients. Their problem depends on the availability of the necessary extra staff and equipment to provide the services to outpatients as well as inpatients. The same applies to a lesser extent in Alberta, where from 80 to 90 per cent of the population is covered by prepaid hospitalization. In Newfoundland, where all the outport hospitals now provide the services both to inpatients and outpatients and where their largest general hospital is operated by the Provincial Health Department, progress should be rapid. The three Maritime Provinces—Prince Edward Island, Nova Scotia, and New Brunswick—are establishing laboratory services first, as these provinces already have reasonably adequate central and district laboratory facilities available.

Conclusion

We are all imbued with the same philosophy in respect to the health of our people, and that is that everyone, no matter where he lives or what his economic status may be, should have everything science and society can offer for the promotion of health, the prevention of disease, and the care of illness.

During the past decade health departments have assumed a great many activities that 20 years ago would have been considered outside the jurisdiction of official health agencies. However, much more still remains to be done before we reach our objective. This objective must be the best health services for everyone within the resources of the community. Surely there can be no higher endeavor for official and unofficial health agencies than to strike out boldly in new directions when the ultimate goal is better service to humanity.

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Bacteriologic Studies in Disinfection of Air in Large Rural Central Schools

II. Ultraviolet Irradiation and Triethylene Glycol Vapor Treatment

F. WELLINGTON GILCREAS, F.A.P.H.A., and HAZEL ROBERTS READ

The usefulness of negative findings is well illustrated here. Though the air disinfecting mechanisms employed in school rooms and school buses reduced the numbers of airborne bacteria, the incidence of respiratory and other communicable disease was not affected, for reasons clearly set forth.

Nine years ago a bacteriologic study of the air in classrooms was undertaken in connection with an epidemiologic survey of the effect of ultraviolet light on the incidence of measles, mumps, and chickenpox in three large rural central schools in Upstate New York. A preliminary report on the epidemiologic study was given in 1947 [1] with a progress report in 1949,[2] and the first report of the bacteriologic studies was given in 1950.[3] This is a continuation of that report and a résumé of the bacteriologic investigation.

The three schools that have been cooperating with the New York State Department of Health since 1945 are the Cato-Meridian Central School which is completely equipped with ultraviolet lamps, the Port Byron Central School in which a room housing one section of each of the lower grades is irradiated and another is not, and the Mexico Academy and Central School which has no ultraviolet lamps and was used as a control.

In 1948 the Clyde Central School was added to the study to observe the effect of triethylene glycol vapor on the bacteriologic quality of the air. Machines were placed so that glycol vapor was discharged into each of the six separate ventilating systems near the fan. The output of these units could be automatically controlled and was adjusted to deliver a concentration of glycol that would maintain better than 50 per cent saturation in the air of the classrooms. The vapor was carried throughout the school building with the circulating air and its concentration in representative classrooms was checked periodically by the dew point method. The Mexico Central School served as a control for this study, also.

All are modern school buildings of similar design and have similar ventilating systems. All are located within 40 miles of Syracuse in the central part of the state and draw their pupils from rural or semirural areas with from 60 to 100 per cent being transported by school bus. Monthly visits were made to the

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schools during each school year to sample the air in representative classrooms of the lower grades while regular classroom activities were in progress. Three determinations were made in each room. The number of bacteria-bearing particles settling per square foot per minute was measured by exposing five Petri dishes, one near each corner and one in the center of the room; the number of bacteria-bearing particles per cubic foot and the presence or absence of streptococci was determined by the use of the Wells air centrifuge.

The solid medium used was almost identical with the standard tryptone glucose extract agar used for the bacteriologic analysis of water, while the medium used in the isolation of streptococci was a tryptose-proteose peptone broth. The detailed methods are described in the preliminary report of 1950.[3]

In the earlier report the results of four years of testing the effect of ultraviolet light were analyzed in terms of the apparent percentage reduction of bacteria-bearing particles in pairs of samples taken in irradiated and unirradiated classrooms. In rooms housing the kindergarten, third, and fifth grades, those chosen for the study, the median percentage reduction in the plate count in irradiated rooms was 42 per cent. The median percentage reduction in centrifuge count, or total bacteria-bearing particles, was also 42 per cent. Table 1 shows the results of the study over the complete nine-year period, including the use of both ultraviolet lamps and triethylene glycol as protecting agents. Although the percentage reduction varied widely over the years, the medians for the entire test are remarkably similar to those of the first four years. There is a 34 per cent reduction in the total bacteria count at the Port Byron School and a 44 per cent reduction at the Cato-Meridian School, making a reduction in all irradiated rooms of 37 per cent. The plate count indicates a 36 per cent reduction at Port Byron, 43 per cent at Cato, and 39 per cent for the entire test.

Table 1—Median Percentage Reduction in Bacteria in Protected Rooms by Years

	Bacteria per Cu. Ft. (Centrifuge Count) Median Percentage Reduction			Bacteria Settling per Sq. Ft. per Min. (Plate Count) Median Percentage Reduction		
School Year	Port Byron Irradiated and Unirradiated	Cato-Meridian Irradiated and Mexico Unirradiated	Clyde, Glycol and Mexico, Control	Port Byron Irradiated and Unirradiated	Cato-Meridian Irradiated and Mexico Unirradiated	Clyde, Glycol and Mexico, Control
1945–1946	45.5	38.0		42.0	45.0	
1946–1947	60.5	71.0		56.0	47.0	
1947–1948	21.0	28.5		12.0	39.0	
1948–1949	27.0		57.5	54.0		56.0
1949–1950	42.0		81.0	32.5		62.0
1950–1951	22.0		65.0	9.0		53.0
1951–1952	8.0		59.0	16.0		54.0
1952–1953	28.0		38.0	34.0		44.0
1953–1954		28.0	44.0		43.0	58.0
	34.0	44.0	60.0	36.0	43.0	55.0

Table 2—Distribution of Streptococci According to the Lancefield Groups

	Number of Streptococci Isolated	Per cent of Total				
		Group A	Groups H and K	Group D	Others Groups B–N	No Reaction in Sera Groups A–N
Irradiated classrooms	193	4	14	25	10	47
Glycol-treated classrooms	171	5	24	16	6	49
Untreated classrooms	496	5	23	20	7	45

The results of the glycol disinfection study at the Clyde Central School show considerably less variation in percentage reduction over the six years of the test. The reduction itself is greater than that achieved with ultraviolet light, being 60 per cent of the total bacteria and 55 per cent of the settling count.

The results of the determination of streptococci at the four schools are shown in Table 2. It was hoped originally that an indicator organism could be found to disclose the presence of contamination in the air by agents of respiratory infection as bacteria of the coliform group are used to denote pollution of water by intestinal discharges. None was discovered. However, the grouping of streptococci according to the Lancefield technic, while time-consuming, yielded much interesting information. Nearly half of the strains isolated did not react in sera of Groups A through N. It is probable that having been isolated from a medium not their normal habitat, some of the strains lost their specific serologic characteristics. The large numbers of streptococci belonging to Group D encountered throughout the study suggest that because the school population was drawn from rural areas, these strains might be of animal origin and were introduced on the clothing and shoes of the children. Most of the remaining streptococci were found to be serologically related to Groups A, H, and K, all of which are considered to be of respiratory origin. The percentage of Group A streptococci isolated from irradiated, glycol-treated, and unprotected rooms remained small but constant; however, 14 per cent of the strains isolated from irradiated rooms belonged to Groups H and K; while 23 per cent of those from the glycol-treated and unprotected rooms belonged to these groups. The percentage of strains that showed no reaction in sera of Groups A through N was practically unchanged by the introduction of protecting agents, indicating that these measures were not responsible for the attenuation of serologic properties.

Table 3 presents the effect of the use of ultraviolet light and glycol vapor on the occurrence of streptococci in classrooms. The results have been presented both in terms of all the streptococci isolated and also only those that reacted with sera of Groups A through N, excluding Group D.

The percentage reduction in total streptococci occurring in Cato over those present in Mexico was 47 per cent, while the reduction obtained in the irradiated rooms in Port Byron was 39 per cent; these figures are similar to the reduction in total bacterial count obtained over the same period at these schools.

Table 3—Percentage Reduction in Streptococci in Protected Rooms

		Total Streptococci Detected			Significant Streptococci Detected (Groups A Through N, Except D)		
		No. Found per 100 Samples			No. Found per 100 Samples		
	No. of Samples	Unprotected	Protected	Per cent Reduction	Unprotected	Protected	Per cent Reduction
Cato (UV lamps)	166		55	47		16	59
Mexico	144	104			39		
Port Byron (UV lamps)	173		54	39		18	47
Port Byron	183	89			34		
Clyde (Glycol)	177		89			31	
Mexico	174	100		11	33		6

The reduction owing to the use of triethylene glycol at the Clyde School, however, was scarcely a significant one, being only 11 per cent of the total streptococci and 6 per cent of the significant ones. This is particularly discouraging in view of the 60 per cent reduction in total bacterial count in this school.

By 1948 it was apparent from the results of the epidemiologic studies that, although there was a significant reduction in the number of bacteria, including streptococci, in the classrooms, there was no corresponding reduction in the incidence of disease. One clue to this anomaly lay in the tendency of some of the epidemics in the irradiated schools to be of the long drawn out rather than the explosive type, suggesting that secondary sources of infection might be tending to minimize the gain produced by reducing the primary source. One important secondary source was the school bus, on which 60–100 per cent of the children came into rather intimate contact with each other daily in an uncontrolled atmosphere. Seeking to eliminate this source of infection, experimental triethylene glycol vaporizers were installed in the buses at Port Byron, and later in buses at Cato and Clyde.

It was, of course, impracticable to attempt disinfection of the air in the buses by indirect ultraviolet light as was done in the classrooms because there was no space above the seven-foot level, where most of the sterilization takes place under that method. All the work in the buses, therefore, was confined to the use of glycol vapor, but two more years passed before a vaporizer could be found which would withstand the rigors of the school bus trips. The one finally chosen employed an ordinary light bulb, the heat from which vaporized glycol coming in contact with it from wicks extending into a small reservoir. The instrument was mounted near the ceiling in the front of the bus over the driver, and vapor disseminating from it was carried throughout by the natural movement of air within the bus.

Unfortunately, the measurement of the concentration of glycol in the air is difficult and requires considerable time to accomplish. The dew point method used in the school building was also employed on the buses and showed results of from 74 to 100 per cent satura-

tion in test situations, a percentage well over the 30 per cent minimum recommended. Since a visible dew point requires from 20 to 30 minutes to form, in this test it was impossible to measure variations in concentration caused by opening the door to discharge passengers during an actual trip, but some fogging of the windows was generally noted and it was felt that the concentration of glycol in the air was so far beyond the minimum that chance variation was probably insignificant.

Sampling the air in the buses had its difficulties. Samples were taken during regular bus trips when the children were being carried to and from school which presented a number of variables such as changing weather conditions, different numbers of children on the bus, and different activity levels. Varied as they are, these factors are the ones that govern the concentration of bacteria in the bus and no test would be valid without them.

Because the Wells air centrifuge could not be adapted readily to sampling on the bus, the General Electric Company's Electrostatic Sampler was used. This gave satisfactory results on samples from untreated buses, but when glycol was added to the air, the sampler's performance became highly erratic, probably owing to the action of the glycol vapor on the naturally charged particles in the air. This sampler was abandoned, therefore, and a bubbler type device was constructed, using vacuum from the bus motor to draw a measured quantity of air through 10 ml of buffered dilution water,[4] part of which was plated in tryptone glucose extract agar as soon as possible after sampling. Samples for the identification of streptococci were also collected in this manner using in the bubbler the same enrichment broth that was used in the classroom study.

Samples were taken at regular intervals throughout the bus trip and a definite pattern soon became apparent varying somewhat from bus to bus and with changing conditions, but retaining its general characteristics. Figure 1 is an example of this pattern. Here the first sample, taken before the children enter the bus, shows a very low count of bacteria-bearing particles per cubic foot of air. A few minutes later the count has reached its maximum, corresponding to the full bus load of children and their activity in getting on the bus. As the population becomes smaller during the hour bus ride, the count falls more or less regularly until it returns to the low level of the first sample. Thus, there are two points of interest; one the

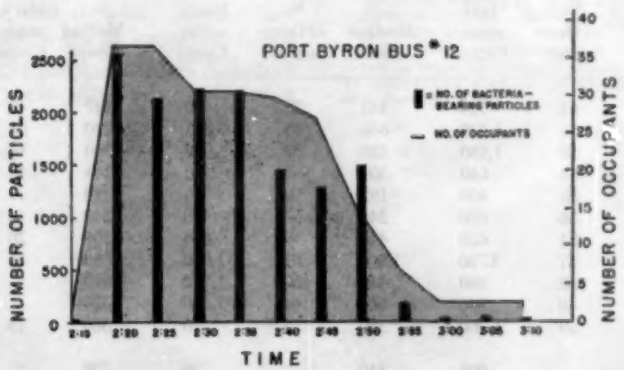

Figure 1. Pattern of Bacterial Counts During Typical Bus Ride

maximum count obtained, and the other the character of the "fall-off" curve which can be partially represented by the median count.

Table 4 shows the data obtained from a two-year experience using the bubbler device to sample the air in a representative bus from the Cato-Meridian School. Tests were run on consecutive days, one day without glycol vapor and the other with the vaporizer in operation. The maximum and median counts for each trip are given. The percentage reduction varies so widely from trip to trip that many more determinations would be necessary before a truly reliable median could be obtained. It is evident, however, that a sizable reduction is accomplished, although the 25 per cent figure obtained here is small beside the 60 per cent reduction found in the classrooms. There are several possible reasons for this difference. The activity levels in the school bus vary more widely than in a classroom situation, making it more difficult to take comparable pairs of samples. Sudden changes in the concentration of glycol could not be measured and it is possible that there were some occasions when the percentage of saturation might have fallen below the optimum level. The temperature and humidity were measured when each sample was taken, but although they varied somewhat, they had no apparent effect on the results.

In the study of streptococci found in the bus, slightly fewer were isolated from samples taken in the presence of glycol, but only 19 different cultures were obtained, a number too small for statistical interpretation.

Summary and Conclusions

Using the methods presented in a preliminary report, samples of air from classrooms and buses of four schools were examined to determine the effect of ultraviolet light and triethylene glycol vapor on the bacterial content. In the irradiated rooms tested over a nine-year period, a reduction of 37 per cent was found in the total bacteria per cubic foot, 39 per cent in bacteria settling per square foot per minute, and 44 per cent in streptococci. The results obtained from comparing irradiated and unir-

Table 4—Reduction in Total Bacteria per Cubic Foot in a Protected Bus

	No Glycol			Glycol			Per cent Reduction	
Month	No. of Occupants	Maximum Count	Median Count	No. of Occupants	Maximum Count	Median Count	Maximum Count	Median Count
Jan., 1953	61	704	441	72	408	140	42	68
Feb., 1953	56	1,230	640	48	475	230	61	64
Mar., 1953	48	1,180	320	58	960	300	18	7
Nov., 1953	64	640	304	65	368	144	42	53
	56	400	192	58	736	320	..	..
Feb., 1954	56	820	240	58	440	240	46	0
	54	620	440	49	460	400	26	9
Mar., 1954	57	3,780	1,900	61	1,660	660	56	65
	48	980	440	50	1,720	1,620	..	..
Apr., 1954	48	940	500	64	1,200	620	..	..
	59	1,260	380	53	320	300	75	21
Median (2 years)		980	440		736	320	25	27

radiated classrooms in the same school were remarkably similar to those using a completely irradiated school and an untreated control.

When the results from the Clyde School, which was completely treated with glycol, were compared with those of the control school, a reduction of 60 per cent was found in the total bacteria per cubic foot, 55 per cent in the bacteria settling per square foot per minute, and only 11 per cent in streptococci. It would appear from these observations that glycol vapor, while producing high reductions in the number of miscellaneous bacteria, was not as effective against streptococci as ultraviolet light under the conditions of this study.

The epidemiologic investigation carried out concurrently with the laboratory phase placed its major emphasis on the effect of protective agents on the incidence of measles, mumps, and chickenpox. No significant reduction was found in any, but since all are virus diseases correlation with the bacteriologic results could not be expected. A study of the percentage of person-days absence owing to respiratory illness in the same schools, however, showed no reduction either in the irradiated or in the glycol-treated school.[5]

Both ultraviolet light and triethylene glycol vapor do an effective job in reducing the number of bacteria in the schoolroom, but it would appear that this reduction is not an important factor in the transmittance of disease. Although the hours spent in school represent a large portion of a child's day, he has numerous other contacts even in these rural areas which were especially chosen for the study to keep such encounters at a minimum. Evidently these "extracurricular" activities and the chance for contact transmission of viruses and bacteria in the total environment play such an important role in the spread of infection that neither ultraviolet light nor glycol vapor can function effectively to reduce illness in the school situation. Also, although triethylene glycol treatment of school buses produced reduction in total numbers of bacteria in the air, the chance for contact infection is so great that the effectiveness of such treatment of the air in buses is questionable.

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A Year's Follow-Up Study of Illness in a Sample of Premature Infants

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In this study answers were sought to three questions: how many and what kinds of early illnesses do premature children have? Are there discernible differences in kind or amount of ancillary medical services received by babies who have "many" or "few" illnesses? And would these differences be helpful in attempting to prevent early illness in prematurely born babies?

It was the impression of the pediatric staff at the University of Colorado School of Medicine that many children who had been prematurely born were being readmitted to the hospital because of illness. Therefore, it was the purpose of this study to determine what might be done to prevent some of these illnesses. It should be noted that the question to be answered was not, are these children having more or fewer illnesses than full-term babies would have?

The group of patients selected for this retrospective study had only three known characteristics in common: (1) They were infants who were considered to be "premature"; (2) they were admitted, either at birth or shortly thereafter, to the Premature Infant Center at Colorado General Hospital which is the hospital of the University of Colorado Department of Medicine; and (3) they were born between April 1, 1952, and September 30, 1952. This six-month period was an arbitrary choice in time selected only so that a sample would be obtained in which each infant would be at least one year of age at the beginning of the study (October, 1953).

Any premature infant born in Colorado may be admitted to the Premature Center. However, due to the fact that the hospital is located in Denver, the majority of infants admitted are either born at Colorado General Hospital, in another Denver hospital, or in nearby areas. This factor of location results in a certain amount of selection in that many very small infants expire before being admitted. With the exception of those babies born at Colorado General Hospital, the group represents a mixture of those who were not doing well at the original hospital but who were doing well enough to be moved, and those who were geographically close and were admitted only because of their low birth weight. This group of patients is more biased toward the lower income families than would be a sample of all prematurely born infants.

Method—One hundred and forty-four infants who were born during the six-month period were admitted to the Premature Infant Center. An attempt was made to follow each infant until his first birthday. Table 1 shows the length of follow-up that was successful. One of the two known to have expired did so at one week of age and had a diagnosis before discharge of Mongolism, congenital heart disease, and multiple anomalies. The other died at five months of age of bronchopneumonia with secondary diarrhea; this patient had no medical care for this illness and was apparently "dead-on-arrival" at a hospital in another city in Colorado.

There were five general sources of information: hospital and clinic charts,

Table 1—Length of Follow-Up

	Number		Per cent of the Total Group	Per cent of Those Alive at Discharge
Expired before discharge	20		13.9	
Alive at discharge	124		86.1	100.0
Followed for full year	86		59.7	69.4
Followed for less than one year	33		22.9	26.6
Under six months		20*		
Six months		4		
Seven months		2		
Eight months		2		
Nine months		2		
Ten months		2		
Eleven months		1		
Not followed at all	5		3.5	4.0
Total	144		100.0	100.0

* Includes two deaths.

"summary cards" from the Colorado State Health Department, questionnaires sent to the mothers, inquiries to the Division of Vital Statistics of the State Health Department, and individual inquiries. The charts from Colorado General Hospital really composed the largest source of information which was frequently duplicated by information from the public health nurses and by answers to the questionnaires sent to the mothers.

The hospital records other than those at Colorado General Hospital which were searched for possible information were both in- and outpatient records from the two hospitals and one clinic having the largest number of pediatric admissions in the city. The "summary cards" used were a source already in use by the Division of Maternal and Child Health of the Colorado State Department of Health. There were two types of cards: The local public health nurse's visits to the patient during his first year of life filled out and returned by the nurse responsible for the child and the source and type of medical social services given to the family during the patient's first year by the state medical social consultant.

The third source of information consisted of questionnaires sent to the mothers asking for information about the illnesses and medical supervision the patient had during his first year. The inquiries made to the Division of Vital Statistics of the State Health Department were directed at a search for death certificates of the 31 patients who were not followed for a full year and not known to have died. The final source of material consisted of inquiries on individual patients made to the social welfare and

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adoption agencies (both public and private), local health departments through the public health nurses, and personnel of the Premature Infant Center.

All the material was coded and the information transferred to IBM cards.

Limitations and Sources of Error—The diagnosis of the examining physician as it appeared on the records was accepted. The severity of the illness was not always recorded and neither could it reliably be inferred; for that reason, all deviations from the normal as stated by the examiner had to be considered as an illness.

As to numbers of illnesses, it was felt that the study would be more reliable if the inevitable errors were toward an underestimation of numbers. Consequently, when the mother stated that the patient had "colds" and this was the only source of information, this was counted as only one illness. If a child was seen in a clinic more than once for what appeared to be the same illness, this was counted only once. If there was a statement in the chart indicating that two illnesses were separated by an interval during which the child was well, two illnesses were recorded; if there were no indications to this effect, then only one illness was counted.

The method of recording numbers of illnesses results in undercounting for three reasons: Recall of mild illnesses one to one and a half years previously is known to be inaccurate. Definitions of "illness" vary markedly among the laity depending on social, cultural, and personal reaction patterns of the mother. Except for the questionnaires and reports from the various agencies, the number of illnesses recorded is dependent on the child's being seen by a physician.

It can be assumed that the most accurate recording of illnesses was in those patients whose outpatient charts were available and who were cared for routinely at Colorado General Hospital in the "Special Well-Baby Clinic" which cares only for infants from the Premature Center. By assuming that all of the babies probably had the same number of illnesses as those 23 cared for primarily through the Special Well-Baby Clinic, the "expected" number of infants with illness was compared with the actual or "observed" number. It was evident that the number who were recorded as having none or one illness greatly exceeded the number which would be expected if the assumption were true. The number of children reported to have two, three, and nine or more illnesses fell significantly short of the number which would be expected on the same assumption.

Since these differences were primarily in the categories of zero to three illnesses, this probable reporting error can be taken into account by comparing the numbers of children having zero to three (or "few") illnesses with those having four or more (or "many") illnesses. This would seem more accurate for the additional reason that it is very unlikely that a child who had four or more illnesses would be reported as having none.

Results

Since only nine of the 33 patients followed for less than one year were followed for longer than six months (Table 1) and only four of them were known to have any illness, the comparisons in the remainder of the paper will be limited to those 86 followed for a full year.

Types of Illness—Table 2 shows the frequency distribution of the infants by number of illnesses experienced. Of the 212 nonhospitalized illnesses, 42 (20 per cent) were of unknown etiology; 17 of these were diarrheas, eight were diseases of the blood and blood-forming organs, four of the nervous system and sensory organs, two of the genitourinary system,

Table 2—Frequency Distribution of Patients Followed for One Year by Number of Known Illnesses

Number of Known Illnesses	Type of Illnesses		Total Illnesses per Patient *	Total Illnesses
	Nonhospitalized	Hospitalized		
Unknown	1	2	1	
0	16	64	13	0
1	23	14	20	20
2	11	5	15	30
3	19	1	14	42
4	3		7	28
5	5		5	25
6	1		3	18
7	3		3	21
8	0		1	8
9	0		0	0
10	1		1	10
11	1		1	11
12	1		1	12
13	0		0	0
14	1		1	14
Total	86	86	86	239
Total with illness	69	20	72 *	

* 17 patients had both hospitalized and nonhospitalized illnesses

three of the skin, and six were of multiple systems. It is of interest that the 17 diarrheas of unknown etiology made up 59 per cent of the 29 illnesses of the digestive tract which were not hospitalized.

Eight (5 per cent) of the nonhospitalized illnesses were malnutrition due to feeding problems; 15 (7.0 per cent) were because of congenital malformations; 16 (7.5 per cent) were thought to be allergic in etiology (one of these was later proved to be mucoviscidosis); four (2 per cent) were mechanical abnormalities (three of the digestive tract); and one was of accidental origin.

One hundred and twenty-six (59 per cent) of the 212 nonhospitalized illnesses were due to infection. Ten (8 per cent) of the 126 were generalized (measles and Roseola infantum); eight (6 per cent) were of the digestive tract (salmonellosis, shigellosis, thrush and aphthous stomatitis).

Sixty-eight of the 86 children had nonhospitalized infectious diseases; 48 of them had, at some time, 92 infectious respiratory-tract diseases. Sixty-five per cent were "URI's" or "Colds"; 11 per cent were otitis media alone or combined with tonsillitis or pharyngitis, 11 per cent were bronchitis, 10 per cent were pharyngitis or tonsillitis, 2 per cent bronchopneumonia, and one patient had "virus flu."

Summarized: Of the 27 hospitalized and 212 nonhospitalized illnesses, 138 or 60 per cent were infectious in origin, 12 requiring hospitalization. Ninety-eight of these 138 (70 per cent) were of the respiratory-pulmonary system. At least 65 per cent of the nonhospitalized illnesses (those due to infection, malnu-

Table 3—Of Those Patients Followed for a Full Year—Number and Per cent of Patients Having Illness by Type of Medical Supervision

Number of Known Illnesses per Patient	Type of Medical Supervision *															
	Private Physician Alone		Private Physician and RLFC		Special WBC Alone		Special WBC and RLFC		CHC Alone		CHC and RLFC		Other † Combinations		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Unknown			1												1	
0	4		3		2								4		13	
1	2		4						3		3		8		20	
2			5		1		4						5		15	
3	3		3		4		3						1		14	
4							2						5		7	
5					1								4		5	
6					1								2		3	
7							1						2		3	
8							1								1	
9															0	
10													1		1	
11							1								1	
12							1								1	
13															0	
14							1								1	
Total	9	10.5	16	18.6	9	10.5	14	16.2	3	3.5	3	3.5	32	37.2	86	100.0

* RLFC—Retrolental Fibroplasia Clinic
WBC—Well Baby Clinic at Colorado General Hospital specifically for prematures
CHC—Local Child Health Conference

† "Other combinations" (32 patients) include: 14 seen both at various clinics at Colorado General Hospital and local CHC; four by private physicians, CHC, and Colorado General Hospital clinics; four by private physician and CHC; five by private physician and Colorado General Hospital clinics; and the remaining five at other hospital clinics in addition to Colorado General Hospital clinics.

trition, and accidents), and 52 per cent of the hospitalized illnesses (those due to infection and malnutrition) were potentially preventable.

Medical Referrals and Length of Supervision—Of the patients followed for a full year 33.7 per cent were known to have medical supervision for less than six months, 57.0 per cent for six months or more, and 9.3 per cent for an unknown period of time. Eighty-four per cent of those followed primarily by a private physician, 74 per cent of those seen in the Special Well-Baby Clinic, and 31 per cent of those seen in several places ("other combinations," see footnote to Table 3) were known to have been followed for six months or more. These differences are all significant. It is not unexpected that private physician follow-up would be most consistent. However, one cannot help but speculate on the inadvisability of several clinics being responsible for the child's care, if continued follow-up appears indicated, since only a third of this group were seen in clinics for six months or more.

Number of Illnesses and Type of Medical Supervision—The known number of illnesses was compared with the type of medical supervision. Of all the children only 7.3 per cent had "few" illnesses. The differences in proportion of infants with illness were significant: Of those being seen at various clinics 56 per cent had "few" illnesses, at Special Well-Baby Clinics 61 per cent had "few" illnesses, and of those under the care of a private physician 100 per cent had "few" illnesses. We would expect a higher number of illnesses in those seen in "other combinations" of

clinics, since the general and emergency pediatric clinics and specialty clinics to which children are taken specifically for illness are included here. But we find little difference between this group and the Special Well-Baby Clinic children. The length of supervision (shortest in the "other combinations" group) and the number of illnesses varied roughly inversely. Although this is only suggestive, constancy of supervision would be expected to increase the number of known illnesses since the opportunity for their observation is more prevalent. On the other hand, in clinic populations, after the immunizations are completed, mothers tend to keep their routine "well-child" appointments only if the child is ill. It is impossible to measure this last factor accurately, especially with such a "special" group of babies.

However, in the children with "many" illnesses, there seems to be less difference between those seen in Special Well-Baby Clinics and those seen in several places than one would expect if length and constancy of supervision were the only factors. If economic status and quality of living conditions were reflected in the number of illnesses, then one would expect the illnesses to be fewer in the private physician group. If this were true, then in addition, one would expect little or no difference between the Special Well-Baby Clinic and "other combination" groups for which the economic eligibility requirements are the same. The percentages cited show these expectations to hold true.

Of the known illnesses 23 per cent were noted during a routine child health conference visit (including the Special Well-Baby Clinic visits), 25 per cent when the mother took the child to a clinic other than a child health conference because of illness, 23 per cent in the emergency room, 8 per cent by the private physician, and 2 per cent by the public health nurse. In 19 per cent the agency was unknown; this constitutes the group of nonhospitalized illnesses reported by the mothers for which a physician may or may not have been called.

Three agencies, then, the child health conferences, the general pediatric clinics, and the emergency room share equally in the care of illness in these prematures. The emergency room physician carries a quarter of the responsibility for the care of these infants and should be so trained as to be alert to his responsibility in their follow-up. The use of the child health conference to treat illness is equal to that of the pediatric clinic designed for this purpose. About three-quarters of the children seen by all of the known agencies except the private physician had "many" illnesses. About a third of the children known to have been seen first by the private physician had "many" illnesses.

All these comparisons indicate that those patients carried primarily by private physicians have the fewest illnesses. There is no doubt that this is a reflection of economic and social status as well as continuity of care given. The relative amount each contributed is not proved or disproved by this study but continuity of care appears to be an important one.

Number of Illnesses and Discharge Weight—Another factor besides type and constancy of medical supervision in determining numbers of illnesses experienced may be the weight of the child at discharge. Seventy-two per cent of the 71 patients weighing 2,500 gm. or less and 85 per cent of the 13 babies weighing over 2,500 gm. had "few" illnesses. Testing for the significance of the observed difference of 12.8 per cent between those having "few" illnesses in the two groups, p. is 0.16 which cannot be considered far out of the realm of chance occurrence.

Number of Illnesses and Birth Weight —The birth weight was compared with illness as seen in Table 4. (Not included in this table were two of the babies

Table 4—Number of Illnesses Compared to Birth Weight

Birth Weight	Number of Illnesses "Few" (0–3) No.	%	"Many" (4+) No.	%	Total No.	%	Per cent of Patients in Each Weight Group	Mean Number of Illness	S.E.M.
1,001–1,500 gm.	16	80.0	4	20.0	20	100.0	24.1	2.3	0.489
1,501–2,000 gm.	16	66.7	8	33.3	24	100.0	28.9	3.3	0.497
2,001–2,500 gm.	28	79.8	11	20.2	39	100.0	47.0	2.85	0.512
Total	60	72.3	23	27.7	83	100.0	100.0		

studied for one year who weighed over 2,500 gm. and one patient who had an unknown number of illnesses.) Of those weighing 1,501–2,000 gm. 13 per cent more had "many" illnesses than in the adjacent weight groups, and 6 per cent more than the total of 27.7 per cent which would be expected if weight made no difference.

Table 4 also shows the mean number of illnesses and the standard error of the mean in each weight group. Applying the statistical test for significance, the difference between the mean number of illnesses in the 1,001–1,500 gm. and the 1,501–2,000 gm. group, the value of p. is 0.08. The difference in terms of actual illnesses does not appear large but does suggest that those children weighing 1,001–1,500 gm. at birth have fewer illnesses than those of greater birth weight.

Number of Illnesses and Age at Discharge—These differences may be the reflection of the length of hospitalization rather than of any difference in resistance to disease. The length of time spent in the hospital could account for the difference in two ways: (1) There would be less time between discharge and one year of age and so less time for illness to be contracted and recorded in the smaller babies who are discharged later; and (2) the child hospitalized for a greater length of time is more likely to be under protection from infectious disease ordinarily contracted in the home environment during a very susceptible period of its life.

Thirty-seven of the 86 babies (43 per cent) were discharged within the first 10 days of life. By the end of 30 days, 53 or 62 per cent had been discharged, and by the end of 60 days, 94 per cent of the patients had been sent home. On the other hand, only 9.2 per cent of the 218 illnesses for which an onset age was known had occurred before the age of two months. Before the age of four months, only a quarter of the illnesses had occurred. Therefore, the incidence of illnesses recorded for the various weight groups was not invalid for the possible reason that too few babies were at risk.

Table 5 shows the number of patients having "few" and "many" illnesses according to the age at discharge. The differences in per cent with "few" illnesses between each of the age groups are all significant when tested statistically. Those whose age at discharge was between 21 and 40 days had a significantly lower proportion of "few" illnesses; 16 of them weighed 1,501–2,000 gm. and represent almost two-thirds of the patients in that weight group.

From this small sample then, it would

Table 5—Age at Discharge and Number of Illnesses

Age in Days	Number of Illnesses (0–3) "Few"	Number of Illnesses (4+) "Many"	Total	Per cent with "Few" Illnesses	Observed Differences (Per cent) †
1. 1–20	30 *	11	41	73.2	> 12.1
2. 21–40	11	7	18	61.1	> 7.6
3. 41+	21	5	26	80.8	> 19.9
Total	62	23	85	72.9	

* Only four patients were kept for 10–20 days (43 per cent of all patients discharged within first 10 days of life. Only 1 per cent of all illnesses occurred under one month of age and 9 per cent under two months of age).

† Values for p. between age groups 1 and 2 (observed difference 12.1 per cent) = 0.0013
Values for p. between age groups 1 and 3 (observed difference 7.6 per cent) = 0.015
Values for p. between age groups 2 and 3 (observed difference 19.9 per cent) = less than 0.0002

appear that even though the differences are small, the patients weighing 1,501–2,000 gm. at birth appear to be the most susceptible to illness for the first year after discharge when compared to those weighing more and those weighing less regardless of the length of time they are kept in the hospital. Those babies kept in the hospital 41 or more days after birth were less likely to have illnesses than those kept 40 days or less. The next best risk group are those discharged between one and 20 days, practically all of whom weighed 2,001 gm. or more at birth. The answer may lie in keeping those weighing less than 2,000 gm. at birth until they weigh over 2,500 gm. It is more likely, however, to be found in re-evaluation of the criteria used for determining the time of discharge.

Number of Illnesses and Number of Public Health Nurse Visits—The Premature Center routinely refers their patients to the local public health nurse. At the time of this study, however, this fact was not consistently noted in the chart so that it was impossible to tell in all cases when the nurse received the referral or the time at which she was able to make the visit after receiving it. Nine (10 per cent) of the 86 patients had no public health nurse visits; all of these had "few" illnesses. Seventy-four (87 per cent) of the children had visits, the number of which ranged from one to 24 over the year with a mode of six visits.

The per cent of patients having "few" and "many" illnesses according to the number of public health nurse visits was calculated. There was no consistency in the variability of the per cent of patients with "few" illnesses compared to the total number of visits to the patient. This is no doubt the result of three variables, none of which was measurable: (1) The nurse may be asked to see those patients with illness more frequently than those without; (2) she may of her own accord visit these ill patients more regularly; and (3) in those patients with private medical supervision she was not called upon or called upon less frequently than in those under clinic care.

Number of Illnesses and Times of Public Health Nurse Visits—Comparison of the age of the patient at the time of his last public health nurse visit was made with the number of illnesses each patient had and with his age at the onset of his last illness and the differences were insignificant.

Age of Onset of Illness and Time of

Last Nursing Visit—In 7 per cent of the 71 children who had any known illness, the age of onset of the illness was unknown. In 19 or 27 per cent, the last known illness occurred between the ages of one and six months; in 46 or 65 per cent, between six months and one year. Seventeen or 85 per cent of the 20 who had no nursing visits after the age of six months were subsequently ill. However, in the 51 illnesses in children who were six months to one year of age when last seen by the public health nurse, only 29 or 57 per cent occurred after the age of six months. The difference between 85 per cent and 57 per cent is a significant one. It no doubt reflects the increasing alertness of the public health nurse to the child after illnesses have occurred, but it also indicates the possibility of her assisting in preventing illness.

Number of Illnesses and Medical Social Service—Comparison was made between the number of illnesses each patient had and the time (pre- or postdischarge) and source of the medical social service he received. Thirty-seven per cent of the patients had none, 39 per cent had both pre- and postdischarge assistance, 24 per cent of the patients had medical social service only after their discharge.

Thirty-two per cent of the 32 who had no medical social service, 19 per cent of the 21 who had the service postdischarge only, and 27 per cent of the 33 who had both pre- and postdischarge medical social service had "many" illnesses. Twenty-seven per cent of the total group had "many" illnesses. Of those 54 who had some medical social service, 24 per cent had "many" illnesses; this is 8 per cent fewer than in the group who did not. It would seem likely that those who had medical social service were selected because they might well have problems which would be reflected in the kind of care the patient received at home and therefore in the number of illnesses. This would very likely account for the lowest percentage of "many" illnesses occurring in those children having postdischarge medical social service only. But it does not account for the fact that the highest percentage of those having "many" illnesses falls into the group who had no medical social service at all.

Since the medical social service appeared to be very scanty in the babies who were discharged at the age of four days or less with their mothers, a comparison of illness in this group with those babies discharged later was made. Thirty-three per cent of the patients discharged from the Premature Center were four days of age or less. Of these 26 babies, 65 per cent had "few" illnesses. Seventy-six per cent of the 59 babies who were age five days or more at discharge had "few" illnesses. Statistically, this observed difference of 11 per cent or a greater one would arise by chance about seven times in 100 similar groups.

A comparison of the types of medical social service (predischarge, postdischarge evaluation, casework, and consultation) in the two groups was also made and the results showed that the amount of assistance was in all cases significantly less for the four days or less age group in each type of service rendered. (The difference of 24.2 per cent of consultation service present between the age groups, the smallest difference of the four categories, gave a statistical significant test of $p = 0.02$.) These facts and the preceding analysis of medical social service indicate that this is a most promising area for increasing efforts to prevent illness in these babies.

Number of Illnesses Compared to Nursing and Medical Social Service—Since the combination of public health nurse and medical social service may be of significance in that medical social service is more likely to be asked for if

a public health nurse is in contact with the patient, comparison of the number of illnesses with the combination of services was made.

Of those with "few" illnesses about half had both public health nurse and medical social service, and an equal per cent of those with "many" illnesses had both types of care. Those who had "few" illnesses received 21 per cent more medical social service, 9 per cent more predischarge public health nurse visits, 17 per cent fewer postdischarge visits, and 4 per cent more of both medical social service and public health nursing combined. The differences in nursing visits have already been discussed. The differences in social service are not explainable on the same basis, however. Medical social service is usually asked for when economic, social, or emotional problems are interfering with progress. If no preventive results were forthcoming, then the illnesses and amount of such service would parallel each other or would vary inconsistently—this is not the case and the opposite is true. The conclusion to be reached is that medical social service, both pre- and postdischarge is of value in preventing some of the illnesses experienced by these children.

Comments

No attempt was made to assess the quality of any work nor could it have been done with this type of study even though its importance is recognized.

Much of the value of this study has been in the questions it has raised which could not be or were not answered here. Many of them could be answered by a longitudinal study rather than a retrospective one. Most of them, however, do not require a study as such but rather an evaluation of the services in each field: Are clinics and the emergency rooms making indicated specific referrals? Are the nurses receiving referrals soon enough? How soon do they then see the child? What and who determines how often the child is visited or returns to the clinic? Are these criteria valid enough? What criteria are used for medical social referrals by the hospital physicians? Are these the most productive?

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Intensive Study of Each Polio Case

The Public Health Service has set up a program for the epidemiologic study of every poliomyelitis case that occurs during this year. The program is centered in the Service's Communicable Disease Center, Atlanta, Ga., in the Epidemiologic Service, whose chief is Alexander Langmuir, M.D. This service, consisting of a group of physicians, statisticians, and other specialists, assists states to track down outbreaks of communicable diseases and identify, report, and interpret the occurrence of infectious disease among large population groups.

This epidemiologic group is working with state medical and public health groups with emphasis on confirmation of reported cases, data on whether case was vaccinated this year or last, laboratory confirmation of diagnosis, and correlation of data to provide a daily record. Weekly summaries are being issued throughout the summer. The study is expected to yield data on the current immunization program and to be useful in continuing evaluation of the program.

Newer Studies on the Epidemiology of Fungous Infections of the Feet

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Aside from the obvious values in its practical applications, this paper is a wholesome reminder of the longevity of any hygienic misconception if, and when, it finds wide enough acceptance.

For years some measures for the prevention of fungous infections of the feet (tinea pedis, "athlete's foot," ringworm of the feet, epidermophytosis) have been based on the assumption that when an individual develops an attack of clinical fungous disease on the feet this represents a freshly acquired infection contracted directly from infected persons or indirectly from contaminated objects in the patient's environment. Among the supposed sources for these causal fungi are said to be carpets, bath mats, slippers, towels, etc., in the patient's home and particularly in areas in and around swimming pools and shower rooms.

If active fungous disease of the feet were really produced in this manner, it would justify the continuation of such attempted prophylactic measures as: the exclusion of persons with fungous infection of the feet from the use of public bathing facilities; the use of disinfectants on the floors of shower and locker rooms; the installation of antiseptic foot baths; and the use of individual disposable slippers. These and other rituals have been recommended over and over again for use not only in schools, gymnasiums, and other public places but even in the patients' homes.

This type of prophylactic measure has been advocated also in some textbooks and articles in the recent medical literature. How do these theories which form the basis of many public health measures against fungous infections of the feet agree with the available evidence from clinical and experimental studies? A survey of published reports dealing with the experimental transmission of tinea pedis has revealed a paucity of research. Von Graffenried,[1] Weidman,[2] and Peck [3] were able to induce clinical lesions in subjects by placing masses of culture material of fungi between the toes into skin which had been macerated for several days and was kept in a macerated state for sometime after inoculation, or by encasing the inoculated areas by binding with adhesive tape. Such severe, highly artificial measures, however, are no more likely to have bearing on the actual manner in which acute attacks of fungous infection of the feet are produced under natural conditions than does the fact that a pyogenic infection of the skin probably can be caused by scarifying the skin and then applying a dressing with material from a culture of Micrococcus pyogenes var. aureus to the area.

Many attempts have also been made to demonstrate the presence of pathogenic fungi on the floors of shower rooms and public baths. It was hoped that demonstration of their presence would support the assumption that acute attacks of fungous infections of the feet are due to an infection which has been picked up in these potential breeding

places. The vast majority of examinations, however, have been unsuccessful.[4-8] Recently, Ajello and Getz [9] were able to isolate a single culture of Trichophyton mentagrophytes (T. gypseum) from the tile floor of a shower stall, using a medium containing cycloheximide [10, 11] which is more or less selective for obtaining growth of certain pathogenic fungi. They also cited an earlier isolation of a pathogenic dermatophyte from a bath mat.[12] It can be argued that the failure to isolate pathogenic fungi from these sources may to a large extent have been due to overgrowth of saprophytic molds on the culture media—even though these media contained cycloheximide (our own unpublished studies and those of others). Nevertheless, it is remarkable that despite literally hundreds of unsuccessful attempts at isolating dermatophytes from areas in and around swimming pools and shower rooms the idea that these areas are important sources of infection producing acute attacks of fungous infections of the feet has persisted in the minds of public health authorities.

The shoes and socks of individuals with tinea pedis also have been blamed as a source of infection and especially of reinfection. It is not surprising that fungi have been found repeatedly in shoes and socks since these articles usually contain organic materials and are, in infected persons, constantly exposed to the fungi.[9, 13-15] However, their actual role as causes of infection or of acute attacks of fungous disease of the feet has never been scientifically investigated and proved.

For many years certain dermatologists have held the opinion that most of the available evidence speaks strongly against the causal role of exogenous exposure in acute attacks of fungous disease of the feet.[5, 16-20] They have postulated that the occurrence of clinically active disease is principally due to the lowered resistance to the fungi of certain sites on the feet of some subjects who previously had been carrying fungi in a latent, opportunistic, facultatively pathogenic state on their own feet.

If this theory is correct, and there is much evidence in its favor, exogenous infection would play a minor or negligible role in the causation of the acute attacks of fungous infections of the feet. In further support of this idea it is to be noted that Schramek [21] in 1916 already demonstrated fungi in clinically entirely normal skin areas in patients with fungous disease of the feet. Moreover, pathogenic fungi often have been demonstrated on the feet of persons who had no clinical symptoms of tinea pedis.[7, 19, 23-28]

The important role of local susceptibility is most obvious in subjects who have had clinically active tinea pedis recurrently or continuously over a long period of time. Often only a small part of the total surface of their feet is involved—despite what must be overwhelming exposure of the other parts. Hopkins, et al.,[29] found that the species of fungi causing fungous infections of the feet at a military post occurred in the same ratio in every group examined. If contagion were an important factor in the spread of the disease, one species of fungi would be expected to predominate in different groups of men in the

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same military post. Moreover, in recurrent attacks of fungous infection of the feet the organism responsible for the first attack was usually found in subsequent infections, strongly suggesting that in most cases recurrences were flare-ups of latent infections. In reporting on the results of a questionnaire answered by 88 of America's leading dermatologists,[18c] it was found that of the probably many thousands of patients with fungous infections of the feet and groin examined through the years by these specialists, a definite possibility of conjugal or familial transmission was proved in only four instances.

It seemed to us that while all the available evidence appeared to be against any important role of exogenous infection in the causation of acute attacks of fungous infections of the feet, a definitive answer to this problem could be obtained only through experimental investigation. Our studies which were carried out under a grant from the U. S. Army have not yet been completed. We are presenting here some of our results to date which have a particular bearing on the public health aspects of fungous infections of the feet.

Experimental

Studies were made to ascertain whether pathogenic fungi actually are shed in the scales from the feet of subjects with clinically active tinea pedis.

Seventy-eight subjects with clinical evidence indicating fungous disease of the feet were examined, and 28 subjects clinically free from the disease were also included.

Each subject immersed his feet for 15 minutes under standard conditions in 200 ml of sterile tap water in a sterile enamel pan. The foot bath water thus obtained was then centrifuged and the sediment was examined microscopically by the potassium hydroxide method and with the Hotchkiss-McManus stain, as well as in culture on Sabouraud's glucose agar and other media.

Results: In 54 of 78 subjects with clinically active lesions (69 per cent) fungous elements were seen microscopically in the foot bath water. Of these, 13 yielded cultures of pathogenic fungi (eight of Trichophyton rubrum, four of T. mentagrophytes, and one of Epidermophyton floccosum).

In four of 28 subjects (14 per cent) clinically free from fungous disease of the feet fungous elements were seen in the foot bath water and in one instance a culture of a pathogenic fungus (T. rubrum) was isolated. It is noteworthy that these four subjects when previously examined by the usual mycologic procedures had failed to show fungous elements on their feet.

Studies were made to ascertain whether foot bath water containing fungi is capable of causing acute attacks of fungous infections of the feet in subjects free from mycologic evidence of tinea pedis.

Forty-five subjects were included in these tests. Their feet were free from fungous elements at two microscopic and cultural examinations done at weekly intervals. One foot of each subject was exposed for 30 minutes to foot bath water containing fungi.

In 14 of 45 subjects the exposure was to the foot bath water freshly obtained from proved sufferers of active fungous infection of the feet. The remaining 31 subjects were exposed to foot bath water deliberately contaminated with viable fungi obtained from culture tubes. The number of viable fungous elements, as roughly estimated by the method of Friedhoff and Rosenthal,[30] varied between 680 and 52,000 per 200 ml foot bath with an average of 19,075. The other foot in all volunteers served as a "control" and was placed similarly in a foot bath which contained fungus-free sterile tap water. Subsequently, both feet of the volunteers were checked

mycologically once weekly for six weeks with scrapings examined both microscopically and by culture.

Results—Of the 45 subjects thus exposed not one developed clinical fungous disease. Eighteen (40 per cent) also failed to show either by microscopic examination or by culture fungi in scrapings from their feet at any time during the six-week period following deliberate exposure. In 27 (60 per cent) of the 45 volunteers fungous filaments were seen in one or more scrapings subsequent to the deliberate exposure to fungous contaminated water. In 23 volunteers fungi were seen in the scrapings from the exposed foot and in 15 from the control foot. In some of the subjects positive scrapings were seen more than once in the six weekly examinations. The total number of positive microscopic findings was 38 for the test foot and 26 for the control foot.

From two subjects cultures of T. rubrum were isolated on one occasion, although they had been exposed to water contaminated with T. mentagrophytes. This indicates that these two volunteers had a previous latent infection with T. rubrum, not discovered in the two pre-experimental mycologic examinations, and that exposure to T. mentagrophytes did not result in a culturally detectable or clinically altered infection. In still another subject five weeks after deliberate exposure to T. mentagrophytes the same species was recovered in culture.

Among the 14 subjects who had been exposed to foot bath water from fungous infected volunteers, which presumably contained relatively minute quantities of viable fungous elements, only three showed mycelia upon subsequent examination (three on the test foot and two on the control foot). Among the 31 subjects who had been exposed to foot bath water deliberately contaminated with presumably larger quantities of fungous material, 24 showed mycelia upon subsequent examination (20 on the test foot and 13 on the control foot).

Comment

Fungous elements were found in the foot bath water of 69 per cent of 78 subjects with clinical fungous infection of the feet indicating that pathogenic fungi are readily shed from the feet of a majority of subjects with clinically active fungous infection. It should be noted that many in this group of subjects had been under treatment for their fungous disease. Perhaps in an entirely untreated group of subjects an even higher incidence of positive findings might have occurred. In addition, fungous elements were found in the foot bath water of 14 per cent of 28 subjects without clinical signs of fungous infection confirming earlier reports that persons may harbor pathogenic fungi on their feet in the absence of clinical changes. Moreover, our experimental results demonstrate that even in uninfected persons the quantity of fungi on the feet may be sufficiently great to be shed into the surroundings.

That the incidence of positive microscopic findings on clinically normal feet varies tremendously is shown by comparing our 14 per cent figure with the 40.8 per cent figure of Strickler and Friedman [28] and the 1.7 per cent figure of Ajello, et al.[25] Perhaps these differences can be explained on the basis of very marked variation in the degree of exposure to fungi between the groups of subjects examined. These very striking differences in the incidence of positive microscopic findings can be readily explained on the basis of our studies in which we attempted to infect subjects free from mycologic evidence of tinea pedis. The more massive we had made the exposure to pathogenic fungi, the more frequently it was possible to demonstrate fungous elements microscopically. Thus, mycelia were found

in only one-fifth of the volunteers who had undergone a light fungous exposure as contrasted with two-thirds of those with more massive fungous exposure. However, no matter how massive we made the exposures we were unable to detect any association between the finding of fungous mycelia on feet and any tendency to develop clinically active fungous infection during the subsequent six weeks.

The deliberate exposure of 45 subjects to fungous contaminated foot bath water (under conditions which probably were much more favorable to the development of tinea pedis than the usual actually occurring natural conditions) did not result in a single acute attack of fungous infection nor in any other gross clinical changes. It appears to us that our experimental results give overwhelming support to the previously available strong clinical evidence favoring the theory that acute attacks of fungous infections of the feet are usually due to a flare-up of a pre-existing latent, clinically or mycologically often not detectable infection. Contagion, i.e., exogenous exposure to pathogenic fungi, appears to play a minor or negligible role in causing clinically active, e.g., acute attacks of fungous infection of the feet.

The easy transmission of these microorganisms from one foot to another (and we may assume to other people's feet as well) is demonstrated by the fact that 15 of the 23 subjects who showed mycelia on their fungous exposed foot also showed mycelia on their "control" foot. The fungi on the clinically normal feet may be termed "opportunists," which probably when the local conditions are right (lowered skin resistance), multiply and cause clinical disease. Indeed, it is the letting down of the defenses on the part of the human host which leads to acute attacks of tinea pedis and not the contagion from the swimming pool, shower room floor, bath mat, or the thousand and one other objects which have been blamed and which have consequently been repeatedly sterilized, by exposure to heat, formaldehyde, and other methods.

It may be assumed that most human beings living in the United States begin to carry fungi on their feet in childhood or adolescence. They must be constantly contacting them in the many places where infected individuals deposit them daily. These young people develop clinical fungous disease only when unusual conditions occur. Until such time the fungi remain opportunists or facultative pathogens on their feet—of no more danger to their health than the staphylococci which also live on their skins. The fungi cause fungous disease on the feet and the staphylococci cause boils, folliculitis, etc., when the individual's resistance becomes lowered. In view of all this evidence some of the hitherto commonly instituted public health measures could well be discarded.

It is useless to attempt to sterilize articles in and around bathrooms, showers, swimming pools, etc., or to impregnate them with fungicidal agents. There is no evidence whatsoever that those areas are breeding grounds for pathogenic fungi despite the fact that fungi are apparently continuously deposited there from human beings with and without manifest fungous disease.

It is useless to attempt to sterilize shoes, socks, and other fomites of patients with fungous disease of the feet. They may often contain pathogenic fungi, but sterilizing them cannot sterilize the patient's feet which continue to carry and disseminate the fungi and which are inevitably undergoing frequent exogenous exposure. On the contrary, attempts at sterilization with chemicals are, in general, likely to do more harm than good. These chemicals may cause primary or allergic irritation of the skin. When this happens they lower the resistance of the skin to such an extent that the previously present fungi,

true to their character as opportunists, now find a fertile soil for multiplication with consequent development of the attack of clinical fungous disease. It is naive to expect that wading for a few seconds through a basin of antiseptic solution would help to prevent the transmission of fungous disease of the feet. These stagnating, unhygienic puddles should be abandoned.

There is no reason to practice exclusion of persons with tinea pedis from camps and other public facilities. The relatively small number of fungous elements which they deposit are unlikely to cause trouble, since even the large masses of fungi used in our attempts at experimental infection have been shown not to cause clinical disease in persons with adequate resistance.

What then are the measures which should be instituted to prevent active fungous disease of the feet? It appears obvious that one should make every effort to institute those procedures which will maintain or raise the resistance of the individual's skin. For example: (1) the use of perforated shoes whenever possible, and especially during the hot part of the year, in order to reduce the tendency toward moist conditions and maceration, and to prevent a relative shift of the skin pH on the feet toward the alkaline side; (2) perhaps the wearing of wool and cotton socks which are capable of absorbing moisture, rather than of nylon, rayon, and other nonabsorbing sock materials; (3) the regular use of a drying, mildly fungistatic foot powder (e.g., sulfur ppt, boric acid, tannic acid, zinc peroxide aa 5%, talc qs, or one of the commercially available fatty-acid containing powders); (4) the insertion of lamb's wool in the toe webs in persons with a tendency to interdigital maceration; (5) careful drying of the feet and changing to dry footgear whenever the socks and shoes become "soaked"; and as a logical measure (even though not yet experimentally proved) the use of nonalkaline soapless detergents for washing the feet rather than of ordinary toilet or other soaps which increase the tendency to alkalinity.

Summary

Experimental evidence has been presented that pathogenic fungi are readily shed from the feet of many individuals with and without clinically active fungous disease of the feet. Persons clinically free from fungous disease of the feet often—and perhaps usually—harbor pathogenic fungi on their feet, even if they cannot be detected in one or more careful clinical and mycologic examinations.

Attempts to induce acute attacks—or at least some evidence of clinical fungous disease of the feet in 45 subjects, mycologically free from the disease, by deliberate exposure to masses of pathogenic fungi in foot baths have been entirely unsuccessful. Not a single instance of fungous disease occurred within six weeks after exposure, although during this period fungi were found one or more times on the feet of 60 per cent of the exposed subjects. The ready transmission of fungi from the exposed feet to the unexposed "control" feet was demonstrated.

The results of these studies add convincing experimental evidence to the previously existing clinical data that exogenous exposure to fungi in swimming pools, shower stalls, bathrooms, etc., plays a minor or negligible role in eliciting acute attacks of fungous infections of the feet. As repeatedly stressed by certain dermatologists in the last 25 years, it is the decreased resistance of the skin of the human host with a resultant activation of the pathogenic fungi, previously lying dormant as opportunists on the patients' own feet, which is usually responsible for such attacks.

For the sake of re-emphasis mention is

made of certain hitherto commonly used, but ineffective and potentially harmful measures for the prevention of fungous infection of the feet which should be discarded. Similarly, suggestions are resubmitted for a few simple procedures designed to maintain and raise the local resistance of the feet and thus to prevent acute attacks of tinea pedis.

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The Penicillin Content of Poliomyelitis Vaccine (Salk) and Its Administration to Allergic Patients

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Does the Salk vaccine contain penicillin? Will it cause reactions in sensitive persons? Here is reassurance based on direct observations.

✝ Intense interest in the new poliomyelitis vaccine Types 1, 2, and 3 (Salk) has occasioned some question of its safety for administration to allergic children. Because of its content of residues of monkey kidney, the medium upon which the virus is grown, some have asked whether it can be safely injected into persons allergic to other animal proteins. The addition of 200 units of penicillin to each milliliter of culture medium [1] has also aroused concern lest the vaccine cause reactions in those already allergic to penicillin. Although the vaccine has already been given to many children apparently without inducing a serious allergic reaction, the present report is made with the purpose of clarifying these points at issue.

Materials and Methods

Sixteen adult allergic patients served as test subjects. They suffered from allergic rhinitis and asthma due to multiple sensitivities, and exhibited many strong immediate positive skin tests to pollens, inhalants and foods. All reacted strongly on tests with animal dander extracts, and three also to animal proteins such as beef, pork, or lamb. Eleven of these were clinically sensitive to one or more animal danders. Intracutaneous tests were made with undiluted poliomyelitis vaccine as in standard allergy testing. Eleven of the 16 were also given a trial subcutaneous injection of 1.0 ml. of vaccine.

To study the possible effect of poliomyelitis vaccine in persons known to be allergic to penicillin, a patient with a history of an intense erythemato-vesicular reaction to penicillin acted as a test subject. He had a strongly positive delayed 24–48 hour skin test reaction to crystalline penicillin G solution, clearly demonstrable to a dilution of 10 units/ml. An additional and even more sensitive indicator of the presence of penicillin in the poliomyelitis vaccine was available in the form of the serum of a patient who had an acute anaphylactic shock reaction induced by penicillin. This serum contained reagins in such titer that in a passive transfer site it gave a definitely positive reaction to penicillin in a dilution of only 0.5 units/ml.*

Control observations were carried out in 63 unselected adult ward patients, in each of whom intracutaneous tests with the undiluted vaccine were made for the immediate reaction just as in the allergic test subjects. In 58 patients intracu-

* The author is indebted to Dr. Bernard B. Siegel who provided this serum and carried out the passive transfer tests.

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taneous tests for a delayed 24–48 hour reaction were also made with 0.1 ml. of the vaccine.

Results

1. The control intracutaneous tests with poliomyelitis vaccine for the immediate reaction showed only negative or plus-minus responses in all 63 subjects. The tests for the delayed reaction gave a negative reading in 39 patients, faint erythema only in 16, and slight erythema and infiltration or edema in three. At 48 hours all reactions noted at 24 hours had almost completely subsided.

2. Intracutaneous tests with poliomyelitis vaccine for the immediate reaction were negative or plus-minus in 14 of the 16 allergic subjects and gave a one-plus reaction in two. Trial subcutaneous injections of 1.0 ml. of undiluted vaccine administered to 11 of the 16 patients, including both patients with one-plus reactions on skin test, did not in any case induce either a local or constitutional reaction during the following 48 hours.

3. Intracutaneous tests for the delayed reaction as carried out in the penicillin-sensitive subject showed slight erythema and infiltration at 24 hours, almost completely subsided at 48 hours as observed in three of 58 control subjects. Simultaneous tests with crystalline penicillin G solution showed a marked positive reaction to the usual test concentrations, and even at a dilution of 10 units/ml. elicited a reaction of bright erythema, 1.0 cm in diameter, almost unchanged at 48 hours and still visible after more than a week. The contrast in appearance and evolution between the lesions induced by penicillin and by vaccine suggested that the vaccine, as available for immunization, contained penicillin in a concentration less than 10 units/ml. Subcutaneous trial injection of 1.0 ml. of vaccine did not induce either a local or constitutional allergic reaction in this subject.

Passive transfer sites previously sensitized with the serum of an anaphylactically penicillin-sensitive patient as tested with undiluted poliomyelitis vaccine gave completely negative reactions. The penicillin content of the vaccine was thus indicated to be less than 0.5 units/ml.

Summary and Conclusions

1. Sixteen adult patients with allergic rhinitis and asthma due to multiple pollen, inhalant and food sensitivity, and with strongly positive skin test reactions to animal danders, were tested with poliomyelitis vaccine. Intracutaneous tests and trial subcutaneous injections of the undiluted vaccine did not demonstrate evidence of cross-sensitivity.

2. Intracutaneous and trial subcutaneous tests with poliomyelitis vaccine in a patient with persistent penicillin sensitivity did not elicit any reaction attributable to its possible penicillin content. Tests in passive transfer sites with the serum of a patient anaphylactically sensitive to penicillin and known to contain a high titer of reagins were also negative, indicating that the penicillin content of poliomyelitis vaccine is negligible. The vaccine should offer no hazard either to persons allergic to penicillin or as a source of newly acquired penicillin sensitization.

3. Among 63 consecutive control adult subjects, intracutaneous tests with poliomyelitis vaccine showed negative immediate reactions. Of 58 adults only three showed a definite, although slight positive delayed, 24 hour skin reaction, to 0.1 ml. of the vaccine.

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A Perspective on Poliomyelitis Prevention

In the minds of millions of those affected by the press, radio, and television, poliomyelitis vaccine problems are currently uppermost in the field of public health. Indeed, to many lay and professional persons this is the major public health problem at the moment from the standpoint of time, effort, publicity, and energy, if not from the standpoint of death or disability. Rather than to harp philosophically and pessimistically on this obvious and transient overemphasis on a single facet of the broad public health spectrum, public health workers might well use this perfectly natural concern of the public with an undeniably spectacular and valuable development in virus immunology to advance the ultimate total cause of public health. Here is an excellent opportunity to demonstrate the value of well trained, full-time health departments and to advance cooperative arrangements and mutual understanding between the public health physician and the private practitioner—between voluntary and official public health agencies.

A substantial portion of the credit for facilitating and speeding the development of the vaccine belongs to the National Foundation for Infantile Paralysis. Mutual assistance should continue to be the keynote of the relationship between the voluntary and official agencies. The important role in this vaccination program of the official health departments, and especially of those departments with full-time trained personnel, should be made clear to the public. The officials of the National Foundation themselves have set an excellent example in this recognition.

Dr. Hart E. Van Riper, Medical Director of the National Foundation for Infantile Paralysis, has commented on this aspect, as follows:

> The importance of good, basic, full-time state and local health departments is undeniable. Their existence and cooperation were invaluable aids in implementing field trials of the Salk vaccine. Indeed without them it would not have been possible to achieve the extent and range of the vaccine field trials of the last year and it would have taken much longer to demonstrate the effectiveness and value of the vaccine for community-wide use.

The temporary vaccine shortage affords an unusually good opportunity to foster increased cooperation and understanding between the private and the public health physician. Our editorial of February noted that, although extensive nationwide evaluations such as those carried out in the 1954 field trials were not contemplated in 1955, health departments should "include provisions for recording and evaluating the number of patients that contracted poliomyelitis in spite of receiving the vaccine, whether given by the health department or by private physicians." To do this most effectively the health department should know who receives the vaccine from private physicians as well as from other sources. This would help provide a more comprehensive evaluation of the safety and effectiveness of the vaccine than

was possible with the 1954 field trials. At the same time it would promote and safeguard the voluntary system for distribution of the vaccine during its period of scarcity. Thus, should a physician as a result of intensive pressure succumb to the temptation of administering vaccine without justification to less vulnerable patients than those covered in the blanket recommendations, the local health department could refer such cases for action to a "jury of his own peers," that is, the local medical society. Some health departments have already performed this function. The great majority of physicians undoubtedly will do their best to honor recommended patient priorities. Those few who may fail to do so can be deterred and screened out early by the knowledge that the local health department and the local medical society are safeguarding the inoculation program. The average physician keeps his own records of patients receiving all vaccines. He will be glad to cooperate with the health department by periodically sending the names of the recipients of polio vaccine to them during the period of scarcity and until there is a more complete determination of the safety and effectiveness of the vaccine.

A Cooperative Achievement in Standard Methods

Publication of the tenth edition of "Standard Methods for the Examination of Water, Sewage, and Industrial Wastes" celebrates a golden anniversary. The first edition, under the somewhat more modest title "Standard Methods of Water Analysis," appeared in the supplement to the Journal of Infectious Diseases for May, 1905, as the report of a committee to the Laboratory Section of this Association. It was the culmination of the work of several committees and numerous conferences during the preceding 10 years—the result of a suggestion made by Dr. Wyatt Johnston of Canada at the Montreal meeting of the Association in 1894. This report was signed by G. W. Fuller, G. C. Whipple, H. W. Clark, E. O. Jordan, H. L. Russell, J. W. Ellms, and R. S. Weston. At this time sanitary chemical analysis was on a rather firm basis, but bacteriologic tests were less definite and the committee included detailed methods for identification of water bacteria. The letter of transmittal contained the following: "It is said by some that standard methods within the field of applied science tend to stifle investigation, and that they retard true progress. If such standards are used in the proper spirit this ought not to be so." The history of these standard methods during the past 50 years has shown that they have stimulated rather than retarded progress in the laboratory control of water supplies and of water and sewage purification.

Nine editions have been published and the tenth is ready. The first five were prepared under the direction of and approved by the Laboratory Section of this Association. The last three of these had the cooperation of a committee from the American Chemical Society. The sixth edition (1925) was a joint publication of this Association and the American Water Works Association. About 10,000 copies were sold. During preparation for the eighth edition (1936) the Laboratory Section transferred its responsibility to the Association Committee on Research and Standards which appointed the necessary editorial committee and obtained Association approval previous to publication. The current (tenth) edition represents a further step in cooperative publication. The Federation of Sewage and Industrial Wastes Associations now shares equally with the American Public Health Association and the American Water Works Association the responsibility for publication and for preparation through a joint editorial board.

"Standard Methods of Water Analysis" was well received from its inception. It has continued to present in one volume the analytical methods most in favor at the publication date of each edition, although no attempt has been made to translate laboratory results into standards for protection of the public health. This has been done from time to time by the Public Health Service and its recommendations have been included in some editions in appendix form. Unfortunately, there are no figures available for the number of volumes sold of the nine editions that have now passed into history, but sales of the last four totaled 53,000 copies.

It is not the purpose to discuss here the evolution of bacteriologic, biologic, and chemical laboratory procedures for the examination of water supplies and the control of water and sewage purification, but these 10 editions provide a history of this evolution in concrete and lasting form, since they represent as far as possible the changes in practice and thought in this field during the past half century. Furthermore, the laboratory worker with a minimum of scientific background has been given the benefit of much research and experience, together with methods on which he can rely to yield results which are comparable with those from other laboratories.

For the first seven editions little change was made in the format of the book. In the eighth edition drastic changes were instituted with hope of improving the value of the volume, and this has been done again in the current tenth edition which has been to a great extent rewritten and enlarged to 522 pages. Many changes will be noticed. Chemical methods have been brought up to date, particularly by the introduction of spectrophotometric procedures. The sections on industrial wastes have been amplified. The bacteriologic media recommended have been made to agree with that used for milk analysis and the procedure for detection of the coliform group standardized. A discussion of accuracy of methods has been introduced. This new edition will be welcomed by all laboratory workers in the fields represented.

In the preparation of the original report in 1905 "most of the leading bacteriologists and sanitary chemists of America" were consulted and many of them participated in "practical cooperative work." Thus the first edition set a standard of preparation that has been followed in each of the succeeding editions. A roster of participants during the past 50 years would include a high proportion of bacteriologists, engineers, and chemists concerned with problems of water supply and of sewage and industrial waste disposal. Literally hundreds of men and women have given freely of their time and energy. It is to such cooperation that credit is due for the success of these Standard Methods volumes.

(The Journal is indebted to John F. Norton, Ph.D., Tryon, N. C., for assistance in the preparation of this editorial.)

A New Opportunity—Preventing Blindness from Retrolental Fibroplasia

✠ Evidence from several clinical studies and from the production of the retinal lesions in at least four species of experimental animals makes it clear that uncontrolled administration of oxygen to premature babies is the major cause of the blinding eye disease, retrolental fibroplasia. Several hospitals have had no babies with permanent eye damage after instituting rigid restrictions for oxygen therapy, suggesting that blindness from this cause is entirely preventable.

Contrary to expectations, reports from Birmingham and Manchester, England; from Australia; from Montreal, Canada; Denver; Bellevue Hospital in New York; and from a cooperative study that included 18 hospitals show that limiting oxygen administration only to babies showing genuine respiratory distress, and then keeping the concentration from going higher than 40 per cent inside the incubator, does not adversely affect the survival rate.

An Arkansas State Board of Health study of oxygen administration in 24 hospitals reveals the wide variation in concentrations inside the incubator if one relies merely on prescribing oxygen by flow rate. At two liters per minute, oxygen concentrations in incubators varied from 27 to 71 per cent, at six liters per minute from 34 to 90 per cent, depending on the type of incubator and whether the vents were kept closed. The study shows that hospitals should repeatedly test oxygen concentrations inside incubators until it has been determined which rate of flow will keep the oxygen below 40 per cent for the specific incubator, and tests should be made at least once each eight hours thereafter. Physicians prescribing oxygen for prematures with definite respiratory distress will need to specify the concentration desired rather than the flow rate. In some hospitals venturimeters are being tested and other modifications are being made in an effort to obtain some type of safe, mechanical control, but these changes have not obviated the necessity for testing oxygen concentrations inside incubators.

At Bellevue Hospital, New York, this problem has been met in the premature nursery by using oxygen tanks that contain only 40 per cent oxygen and 60 per cent nitrogen. Regardless of flow rate and closed vents, it is not possible for the baby to be in an atmosphere of more than 40 per cent oxygen. This hospital has as good a survival rate as any and has had no sight loss from retrolental fibroplasia in more than 19 months.

Because information about ways to control retrolental fibroplasia has appeared chiefly in scattered reports, several state and city departments of health have sent recommendations covering these points to pediatricians and hospital superintendents. At least one state and one large city department of health have taken additional significant steps. Whenever a member of the New York City Department of Health staff makes a routine hospital inspection and survey, a careful check-up is made of the hospital policy concerning administration of oxygen to premature infants. New York State is one of the few where there is mandatory reporting of blindness (to the Commission for the Blind in the Department of Social Welfare). As soon as blindness from retrolental fibroplasia is reported in either the city or upstate, an epidemiologic investigation will be made to determine the extent of exposure to oxygen of the reported blind baby and to explore in some detail the current practice of the hospital with regard to: (1) degree of exposure of premature infants generally to oxygen, and (2) methods used by the hospital to insure keeping oxygen concentrations below 40 per cent. Findings and recommendations following these investigations will be made available to the chief of the medical staff and the administrator of the hospital concerned.

There are some who believe that, even with the most rigid control of oxygen administration, sporadic cases of blindness from retrolental fibroplasia still might occur from other causes believed capable of producing pathologic changes in the retinal vessels of prematures. The validity of this hypothesis and the nature of other possible factors can be studied best when oxygen-induced retrolental fibroplasia has been eliminated. Since the first recognized appearance of this disease in

1941, the National Society for the Prevention of Blindness estimates that 8,000 children have lost some or all their sight from retrolental fibroplasia and that it now accounts for nearly half of all blindness in preschool children. It is hoped that every possible measure will be adopted to eliminate this cause of unnecessary blindness.

(The Journal is indebted to Franklin M. Foote, M.D., executive director, National Society for the Prevention of Blindness, New York, N. Y., for assistance in the preparation of this editorial.)

Letters to the Editor

To the Editor:

I wish to refer to my article which appeared in the March, 1955, issue of the American Journal of Public Health. On page 308 in the first column I have stated "During a ten-year period . . . the number of children enrolled . . . has decreased gradually and steadily so that in 1951 there were more than a thousand fewer classes than in 1940." Herein I have made an error, and since, in making the error I have in the preceding sentence referred to the National Society for the Prevention of Blindness, I should like to correct it.

Instead of one thousand fewer classes, the statement should actually have read one thousand fewer children in classes for the partially sighted. Dr. Franklin Foote, director of the National Society for the Prevention of Blindness, has graciously sent me the following information which in this regard may be of interest to your readers:

Our records indicate that in 1940 there were 612½ classes for the partially seeing with a reported total enrollment of 8,600, while in 1951 there were 680 such classes with a reported enrollment of 8,000. During the five-year period 1938–1942 the number of classes varied from 589 to 629 and the children enrolled from 8,500 to 8,800—an average of 8,600. During the period 1948–1951 (we do not have information for 1952–1953) questionnaires were not sent out but a record has always been kept of the number of classes known or reported; these varied from 637 to 680 with the estimated enrollment varying from 7,765 to 8,000. None of these figures include partially seeing children being served in the regular grades.

Because this system of reporting is entirely voluntary and variable, I would be willing only to say that the long-term trend since 1940 in enrollment has been somewhat downward, although the trend in the number of classes appears to have been slightly upward until recently.

The above does not change the spirit of my original remarks, but does make them more accurate.

William M. Cruickshank, Ph.D.
Director of Education for
Exceptional Children,
Syracuse University,
Syracuse, N. Y.

March 31, 1955

To the Editor:

The article by Dr. Wallace and her co-authors in this issue entitled "The Use of a Review Committee in a Program for Handicapped Children" points up very well how easy it is for a public agency administering a medical rehabilitation program for handicapped children to permit an unduly long stay of the children in hospitals or convalescent homes. The paper does not make clear, however, the difference between taking a new look at an existing program and an ongoing administrative procedure.

In essence, the paper is a lesson in the technique of a new broom sweeping clean. In part, the changes made as a result of the reviews were corrections of prior administrative decisions—decisions that were made at the time of first or renewal applications for patient care.

Another factor that permitted change of status of some of the patients was the development of new resources not previously available in the community, such as cerebral palsy classes in the public schools. By far, however, the greatest factor was the change in the official agency's philosophy about convalescent care. "In the opinion of the authors, the role of a convalescent institution in a program for orthopedically handicapped children has not been clearly defined, nor are its purposes, functions and services clear." Since Dr. Wallace's group have the same reservations as are now generally held about long-term care, they recommended discharge of some of the patients. Consequently, it is not valid to use the data on number of patients discharged to prove the value of the review committee method. One can only conclude that the present administrators or consultants differ from their predecessors in their concepts of treatment, such as in respect to hospital care of Perthes' disease, for example.

Also, while the paper emphasizes the value of periodic review of patients in long-term care, it fails to substantiate two very important contentions implicit in the report: first, that the review personnel should be in the official administering agency, and second, that the review should be done by a multidisciplinary committee.

As the authors suggest, an official agency has done its job best when the hospital, convalescent home or other community resource which is giving direct care attains an optimum standard of quality in that care. The major investment of the administering agency then should be in strengthening the community resources rather than in emphasizing its own professional share in patient care. It is a first element of any rehabilitation program that the professional team of the rehabilitation center does a periodic evaluation of each patient's progress and status. To the extent that this is absent, the treatment is deficient. Four, five, or six team reviews on a single child during a half-year period would seem to be carrying "third-party" intervention to the ultimate. When the review committee was unable to obtain adequate information in 26 per cent of the cases, such information evidently was also unavailable for the patients' care in the hospital or convalescent home. Efforts no doubt will be expended to improve the quality of record keeping in the treatment agencies. The information is far more important for patient care than for mere administrative review.

There is no question but that handicapped children need a multiprofessional approach. This article, however, does not indicate wherein the multidisciplinary character of the review made a difference. It merely shows that review is desirable. One would hope that involvement of different consultants in the agency was selective rather than routine and that they came into play in respect to the gaps that existed in community services, such as the absence of social service that is mentioned.

This commentary on the article is made in order to point up that success of a single or short-time process, such as Dr. Wallace's Review Committee is not necessarily an argument for establishing the procedure on an ongoing basis as a regular part of administration of a medical rehabilitation program.

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A COMMITTEE REPORT

Administration of Local Inspection Services

Committee on Municipal Public Health Engineering

Engineering Section

Problem

In this report, your committee has considered three problems in the administration of local health department sanitation inspection programs: (1) Transfer to central agencies (outside the health department); (2) generalization versus specialization (within the health department); and (3) overlapping inspections between health jurisdictions.

Pressures to transfer sanitation programs from health to general inspection departments continue to confront public health administrators. Problems associated with such proposals were spotlighted by a panel discussion before the Engineering Section of the APHA and the Conference of Municipal Public Health Engineers at the 1953 annual meeting.[1-3]

Organization of municipal inspectional services is a changing problem and the administrator and the public are concerned about the many inspectors that call in some instances on residents for different purposes. A companion situation of increasing concern is the overlapping and duplication of inspectional activities by various independent health jurisdictions and between the multiple levels of government—federal, state, and local. To a tax conscious public every inspector and each inspection represents a personal cost.

It was pointed out at the APHA annual meeting in 1953 that proposals had been advanced, and had received serious consideration in Los Angeles and Washington, D. C., to remove sanitation inspection programs from the Health Department to new general Departments of Licenses and Inspections. In Philadelphia, similar proposals were considered in the new Charter adopted in 1951; however, the only sanitation activities actually transferred were the sanitation and occupancy of housing and plumbing inspections.

Two significant events occurred in 1954 which further emphasize the serious possibilities of this trend. After deciding in 1953 to retain environmental controls in the Department of Public Health, the commissioners of the District of Columbia directed on June 9, 1954, that all housing inspection activities be consolidated in the Department of Licenses and Inspections. (This action was taken even though the Citizens Advisory Council and other groups favored retention in the Department of Public Health.) A bill was introduced in Congress in March 11, 1954, which in effect would require local acceptance of milk in interstate commerce if certified as to sanitary quality by the chief agricultural officer of the producing

Report of the committee to the Conference of Municipal Public Health Engineers and the Engineering Section of the American Public Health Association, October 11, 1954.

Table 1—Per Capita Budget for Environmental Sanitation, Population Served per Professional Personnel, and Per cent of Department Budget Allocated to Environmental Sanitation for 35 Local Health Departments Grouped by Population Served

Range in Population Served	Average per Capita Budget in Dollars	Average Population per Professional Personnel	Average Per cent of Health Department Budget
1,000,000+	0.396	17,267	17.3
500,000–999,999	0.440	20,209	26.1
200,000–499,999	0.531	14,485	29.6
0–199,999	0.375	15,690	23.8

state,[4] designating the agricultural officer rather than health as the certifying official.

If complacency about these problems existed previously, these actions should jolt public health officials out of such an attitude. They must take cognizance of trends in municipal administration as well as the advanced technical aspects of public health protection.

Survey of Activities

There is a general lack of information concerning the nature of the field work performed by many municipal departments and an absence of expressed opinion by qualified and trained professional people in the various specialties of municipal government. To attempt to fill this vacuum with respect to environmental sanitation, the Committee on Municipal Public Health Engineering of the Engineering Section undertook a study which forms the basis of this report.

To ascertain current practice, it was decided to make a survey of local health departments to obtain information on the scope of activities and the degree of generalization and specialization of personnel. The membership of the Conference of Municipal Public Health Engineers afforded a readily available active group representing local health departments, and a questionnaire was circulated to its members. Completed replies were received from 35 local health departments, ranging in population served from 18,000 to over 2,000,000 (Tables 1 and 2). From a statistical standpoint there is much to

Table 2—Population Served and per Capita Budget for Environmental Sanitation in 35 Local Health Departments

Range in Population Served	Average Population Served	Median Population Served	Range in per Capita Budget in Dollars	Average per Capita Budget in Dollars	Median per Capita Budget in Dollars	Weighted Average per Capita Budget in Dollars
18,000–2,151,030	500,000	370,000	0.11–0.96	0.443	0.42	0.44

Table 3—Distribution of Activities in Environmental Sanitation by Type of Service Provided in 35 Local Health Departments

Departments Reporting Activity *	Water	Plumbing	Sewage	Bathing Places	Refuse Disposal	Food	Meat	Milk	Pest and Vector Control	Animal Diseases	Housing	Barber and Beauty Shops	Institutions	School Sanitation	Air Pollution	Industrial Health
Number with Routine Inspection	30	8	30	32	19	34	25	31	19	3	16	9	21	23	10	10
Per cent with Routine Inspection †	85.8	22.9	85.8	91.5	54.2	97.0	71.4	88.5	54.2	8.6	45.7	25.7	60.0	65.8	28.6	28.6
Number with Consultative Service	26	10	24	18	18	14	12	14	24	7	10	7	17	17	15	18
Per cent with Consultative Service †	74.4	28.6	68.6	51.4	51.4	40.0	34.3	40.0	68.6	20.0	28.6	20.0	48.6	48.6	42.9	51.4
Number with Routine Inspection and Consultative Service	22	2	20	15	11	13	9	13	12	3	7	4	9	11	7	5
Per cent with Routine Inspection and Consultative Service †	62.9	5.7	57.1	42.9	31.4	37.1	22.9	37.2	34.3	8.6	20.0	11.4	25.7	31.4	20.0	14.3

* Duplication occurs in this table when both consultative service and routine inspection are provided in the same activity.

† All 35 departments = 100 per cent.

be desired concerning the data collected; however, the information revealed some interesting indications that are reported for whatever value they may have.

Analyses were made on the basis of 16 major classifications of activities (Table 3). Certain assumptions were necessary in the analysis of data. For example, a department was credited with animal disease control only if a comprehensive program was indicated, not just animal bite investigation. Of the 35 departments reporting, from 80 to 100 per cent maintained routine inspectional activities with respect to water, sewage, bathing places, food and milk. From 60 to 80 per cent conducted inspection of meat and sanitary investigations of institutions and schools. Housing, pest and vector control, and refuse disposal were in the 40 to 60 per cent group. Plumbing inspection, barber and beauty shop sanitation, air pollution control, and industrial health programs were reported by 20 to 30 per cent, while animal disease programs were claimed by only 8.6 per cent. Many departments provided consultative service when routine inspection was not performed. Some of the more recently recognized activities were being conducted, as follows: noise 23.5 per cent,

Table 4—Degree of Specialization Among Various Environmental Sanitation Activities in 35 Local Health Departments

Departments Reporting Activity	Routine Activities in Environmental Sanitation															
	Water	Plumbing	Sewage	Bathing Places	Refuse Disposal	Food	Meat	Milk	Pest and Vector Control	Animal Diseases	Housing	Barber and Beauty Shops	Institutions	School Sanitation	Air Pollution	Industrial Health
Total	30	8	30	32	19	34	25	31	19	3	16	9	21	23	10	10
Number Specialized	4	5	4	4	0	13	12	27	11	3	6	1	1	2	0	6
Per cent Specialized	13	63	13	13	0	38	48	90	58	100	38	11	5	9	0	60

noxious weed 14.7 per cent, home accident prevention 26.5 per cent, radiation 35.3 per cent.

Generalization vs. Specialization

Information was solicited on the degree of specialization prevailing in the administration of the reported activities (Table 4). The number of groups of personnel engaged in specific programs, other than a grouping usually referred to as "general sanitation," were considered to be specialized. Activities reported as specialized by more than 50 per cent of the departments which had these responsibilities were: animal disease control, milk, plumbing, industrial health, and pest and vector control. Animal disease control was 100 per cent specialized, and milk, 90 per cent.

Analysis of the cost of sanitation programs as related to the degree of generalization or specialization revealed very interesting and suggestive results (Table 5). While the average number of services provided did not vary materially between departments on the basis of specialization, the per capita cost per activity increased from about four cents

Table 5—Environmental Sanitation Services of 35 Local Health Departments Grouped by Degree of Specialization Showing Average per Capita Budget, Average Population Served per Professional Personnel,* Average Number of Activities, and Average per Capita Cost per Activity

Per cent Activities Specialized	Average per Capita Budget in Dollars	Local Health Departments		Average Population per Professional Personnel *	Average Number of Activities	Average per Capita Cost per Activity in Dollars
		No.	Per cent			
0– 24.9	0.307	14	40.0	22,000	8.4	0.037
25– 49.9	0.488	13	37.2	14,300	10.0	0.048
50– 74.9	0.639	4	11.4	12,250	9.8	0.065
75–100.0	0.576	4	11.4	12,300	8.3	0.070

* For this study, "Professional Personnel" included all sanitation personnel, excluding clerical and labor.

to seven cents with increased specialization. The population served per sanitarian was greatest at maximum generalization.

It might prove erroneous to conclude that generalized programs were less costly than specialized programs, without knowing more about the quality and quantity of service provided, but the possibility suggests itself. More properly, it may be assumed that administrators tend to generalize to the extent practical when faced with limited budget. It may be significant that only six of the reporting departments claimed all activities generalized, and these performed an average of only seven of the 16 inspection programs.

Generalization within the health department of sanitation personnel is not a new idea. Cameron, in 1949, stated: ". . . As a public health engineer . . . reaches the limit of his budget . . . he must devise ways and means of using his personnel more efficiently. . . . In order to do that, it is recommended that we look to a more generalized program where a sanitarian or public health engineer handles diversified activities. The generalization of sanitation activities, of course, cannot be applied to all phases of the program. Some programs such as milk and meat inspections must be conducted on a specialized level." [5] Cameron also recognized the necessity for highly qualified personnel and the ready availability of technical specialists in a generalized program.

Recent experience in Philadelphia substantiates the practicality of generalization.[6] All activities reported by Philadelphia are performed by generalized personnel, except animal disease control. Even milk sanitation, an activity which 90 per cent of the departments reported to be specialized, is part of a generalized program; and milk plant inspections are made by personnel who also conduct restaurant, swimming pool, radiation, and other diversified investigations. However, these sanitarians are practically all college trained in sanitary sciences or engineering, and are under close supervision of central office specialists.

As programs are developed more adequately in Philadelphia, there is being considered a plan of rotation of duty rather than complete generalization. Aside from animal disease control, such plans envision three fundamental types of program organization, namely, milk and food handling, industrial sanitation, and housing-community sanitation.

Analysis of Proposed Central Inspection Agencies

To relate the results of this study to the subject under consideration requires an objective analysis of the reasons advanced for centralizing all municipal inspection services in a single agency. When all of the theories are reduced to simplest terms, they involve three primary points: (1) eliminating duplication of effort at reduced cost; (2) coordinating activities; and (3) reducing public annoyance. Students of government who advocate an over-all central inspection department contemplate an agency that will issue all licenses and perform all municipal inspections in the person of a super inspector who makes every type of inspection. Such a unit would conduct all inspections related to zoning, fire, plumbing, building construction, public works, electrical, safety, and health.

The supposition that the combining of all inspection duties in a unified department will result in a single city inspector performing every type of inspection is not realistic. Wagner [3] pointed this out when he related, "In 1932, I read a booklet put out by the National Municipal League written by Edna Trull, entitled the Administration of Regulatory Inspectional Services in American Cities. Reference was made to a significant ad-

vance that had been made in one city in consolidating its inspectional services. Eleven years later I went to that city and I found the consolidation to consist of the placing of six or seven separate offices, each with its own staff, within walking distance of each other on two floors, supervised by one Chief of Inspection Services. Each separate activity was staffed by specialists, and maintained its own little kingdom."

Hilbert reports that following his discussion of the "Expanding Scope of Municipal Public Health Engineering" [7] he received many comments that it would be expecting too much to anticipate that one individual could acquire competency even in all spheres of environmental sanitation. Attention is also directed to the fact that technological advances constantly require alteration of existing programs or create new problems not previously encountered. Insecticides, chemicals in foods, radioisotopes—these are just a few of the terms that are suggestive of the need for properly trained sanitation personnel to continually evaluate the factors affecting human life in an advancing civilization.

Baltimore transferred environmental health functions to other agencies, only to restore them later to the health department. Philadelphia has had over two years of experience with a centralized inspection agency established to perform plumbing, building construction, fire, zoning, housing occupancy and housing sanitation inspections. So far, fire inspection, housing occupancy and housing sanitation have been consolidated. Plumbing, zoning, and building construction are still specialty inspections because of the technical knowledge required.

Practical experience is demonstrating that all municipal inspections cannot be adequately performed by a single inspector. Consequently, the creation of a centralized inspection department results only in the transfer of personnel. The question then becomes one of which is the best municipal unit to perform the necessary inspections.

There is much to be gained by having sanitation inspection personnel under the direct supervision of informed professional leaders in the health department. Under such supervision, the objective of the program remains, as it should, the protection of public health. In centralized inspectional agencies, the objective of the program may become the "inspection" in itself. If it becomes anything else, then program planning will have to be introduced in the inspectional agency and there will then be duplication at that level with the health department.

Separation of responsibility for program planning from program execution is not good administrative practice. In the environmental health field there are certain activities—food sanitation, industrial hygiene, etc.—in which the applications of engineering principles are so closely integrated with knowledge of biological sciences that it is not desirable to detach them from professional public health supervision. Housing hygiene programs to be successful must consider the psychological and physiological effect of housing as well as the prevention of contagion and accidental injuries. Only in cities where health departments vigorously undertook this function have the health problems of housing been solved to even a minor extent.[2] Experience in communities where health inspections have been transferred to other central agencies demonstrate a failure to develop adequate administrative technics for translating recommendations of the health department into standards and procedures. There is also the further loss of emphasis on the cause-and-effect relationship to health and the development of an erroneous concept that health inspections can be routinized.

The assumption that multiple inspections performed by different inspectors is duplication is fallacious. Each inspector does more than just inspect; he must evaluate, consult and educate; and this requires professional knowledge and guidance. Only when activities are related can generalization take place irrespective of the department conducting the work.

A coordinated program between various inspection agencies can, and must, be developed to avoid a needless procession of "high-paid public employees." Operation of a central licensing agency with internal handling of approvals by other departments can do much to relieve this source of public annoyance and confusion. The Conference of Municipal Public Health Engineers' Committee on Permit Fees has recommended that, "Under no circumstances should the collection of fees . . . become a part of the duties of the individual who is responsible for the actual inspection and enforcement." [8] Adequate provision should be made, however, for the health department to approve the issuance and require the revocation of licenses where compliance with health standards is involved.

Overlapping Health Jurisdictions

Improved administration of environmental health inspection services can be obtained by a continual critical review of activities to cull those no longer necessary and to emphasize the essential. Generalization of inspection within the health department can be practiced to a greater extent than was previously contemplated. Agreement between health departments upon uniform standards and systems of reciprocity would relieve friction and confusion. Saving could accrue through the reduction of duplicating inspections between various local jurisdictions and between local, state, and federal agencies. With respect to the latter, this committee feels that, when competent personnel are available, inspections should be made at the local level where emphasis can be directed to the most important conditions and follow-up can be readily practiced.

Conclusion

Transfer of sanitation programs from health to other departments may result in loss of effectiveness in protecting public health. Actually, consolidation of inspection activities does not take place when a central inspection agency is established because of technical complexities. Sanitation programs function most efficiently and effectively under professional supervision charged with the primary responsibility to protect the public health.

Generalization of sanitation personnel within the health department can be utilized to a greater extent than previously practiced. Thus reduction of annoying duplication and improving the efficiency of operation can be obtained. Development of reciprocal inspection programs between health jurisdictions is an area where duplication of effort can be eliminated without hindering public health objectives. This deserves further study and implementation.

Recommendation

This committee recommends that improved administration of sanitation inspection programs be achieved through better utilization of trained personnel within the health department, the development and acceptance of reciprocity of inspection between health jurisdictions, not in the transfer of health department functions to other municipal agencies at the jeopardy of health protection.

ACKNOWLEGMENTS—This study would not have been possible without the cooperation of the members of the Conference of Municipal

Public Health Engineers who supplied the basic data and assisted in the preparation of this report.

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PAUL W. PURDOM
Director, Division of Environmental Sanitation, Department of Public Health, Philadelphia, Pa., Chairman
A. P. BELL
J. ROBERT CAMERON
SIDNEY F. DOMMES, JR.
HENRY E. DRUMWRIGHT
WILLIAM RALPH HARDY
ARTHUR H. HERBERGER, C.E.
MORTON S. HILBERT, C.E.
BENN J. LELAND
GUY M. TATE, JR.
NORMAN M. WINCH

Health Education Scholarship

The Philadelphia Division of the American Cancer Society has established a public health education scholarship in order primarily to increase the number of trained health educators in the state. An annual scholarship of $2,700 for a year's tuition and stipend is provided. Applicants must qualify for admission to a recognized school of public health and must plan to remain in the field of health education, with preference being given to employment in Pennsylvania.

Applications for the academic year 1955–1956 close on July 15. Further information from Dr. George A. Hahn, Chairman, Professional Education Committee, Philadelphia Division, American Cancer Society, 20 S. 15th St., Philadelphia 2, Pa.

A COMMITTEE REPORT

We Study Ourselves

Committee on Research and Evaluation

Public Health Education Section

Why Did We?

Why did the Public Health Education Section of the APHA undertake to interview a sample of its members? We wanted to find out: (1) Who we were; (2) what we were doing in our work, in our Section, and in the APHA; and (3) what we wanted from the APHA. The Section wanted this information in order to have a basis for better meeting the needs of the members of the Section in its activities.

Over a period of years members of the Research and Evaluation Committee met with individuals and groups within the Health Education Section to determine their desires for information about the Section, its membership, and their activities. These desires were woven into a questionnaire which pretested 107 members then interviewed a random sample of the membership consisting of 171 persons, or 11 per cent of the total membership.

Who Are We?

Almost half of us consider that our work should be classified mainly as health education—the rest of us are engaged in work which cannot be classified primarily as health education. We do not have quite as much in common with each other as do members of other sections in the APHA.

The largest group of us work for voluntary agencies. Official agencies and educational groups follow in that order. The rest of us are in commercial or other employment.

Slightly over half of us are "local yokels." Thirty per cent of us work at the state level. Ten per cent of us are employed by national agencies.

Our median age is 46 years. Our health educators are younger than our nonhealth educators. (Median age for health educators, 43; median age for other fields, 48.)

We have more men than women in our Section. However, more of the health educators are women—the men predominate among our nonhealth educators.

In terms of education, 43 per cent of us have masters' degrees, while an additional 20 per cent of us have doctors' degrees. If we talk about those engaged mainly in health education, 58 per cent have masters' degrees, over half of which are degrees in health education. Our Section seems to have some appeal for doctors and dentists since they comprise 11 per cent of our total membership!

What are we like? It looks as though we are many quite different people!

How did we learn about the APHA? The most important source for those of us in health education was hearing about it from other students or faculty while we were students. Persons engaged in public health work were the main source

Report of the committee to the Public Health Education Section, October 12, 1954.

for our nonhealth educator members and the second most important influence for our health educators. It is of interest that the APHA Journal appears to be an important source also for our health educators to learn about the APHA. Except for the Journal, we learn about the APHA from other people.

If we consider why we joined the APHA, it is for personal reasons! We wanted professional stimulation gained from contact with other people and also with ideas and information useful in our own work. Also, we wanted to know the latest trends and programs in public health.

We are in the Public Health Education Section because it is related to our work and our primary interest is health education. However, one-fifth of our nonhealth educators gave no answer when asked why they were in the Health Education Section. Apparently, we have a number of members who have no particular reasons for joining our Section. This might make it difficult to plan to meet the needs of the total membership.

What Are We Doing in the APHA?

Most of us have been to the APHA meetings (77 per cent have attended—65 per cent within the last three years). Over one-third of us who went paid our own way either fully or partially!

Figure 1 shows the percentage of the membership who attended national and regional meetings of the APHA and several indications of the type of participation engaged in at these meetings. It seems that fewer of us go to regional meetings, but when we go we are more apt to take an active part!

Most of us see Fellowship in the APHA as a mark of prestige or professional competence. Few of us see the role of the Fellows as giving the right to hold office and chair committees. Many of us have misconceptions about the role of Fellows, such as thinking the right to vote and the right to work on committees are limited to Fellows.

Some ideas about what we think and what we are doing as health educators are interesting. Figure 2 is a graphic presentation of the activities which

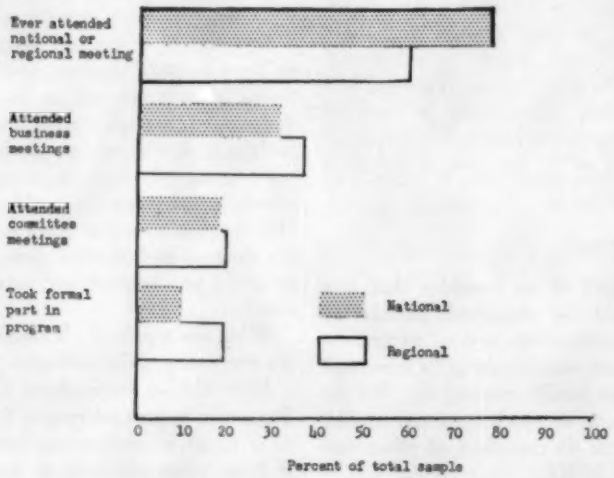

Figure 1—Attendance and Participation at National and Regional Meetings of the American Public Health Association

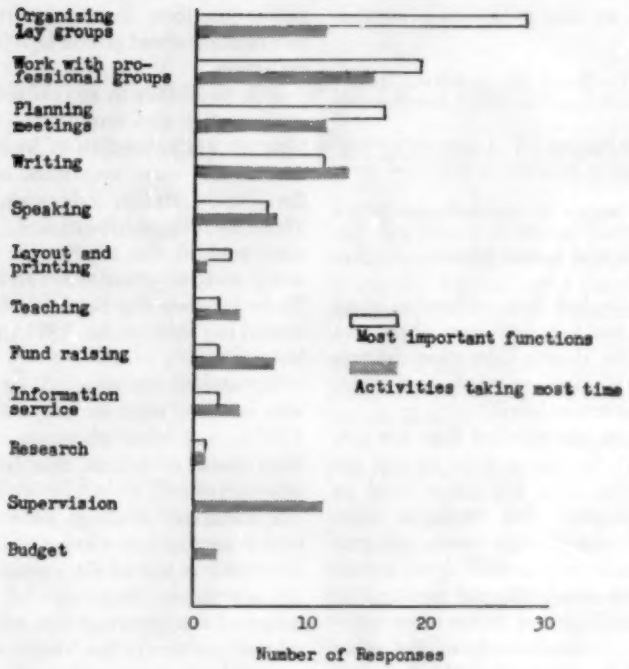

Figure 2—Most Important Functions of Health Educators as They See Them and the Activities on Which They Spend the Most Time

health educators feel are the most important functions of a health educator together with the activities on which we spend the most time. Note that health educators do not spend as much time in organizing lay groups as they seem to think important, but engage in or are forced by circumstances into administrative functions such as fund-raising and supervision.

What Do We Want?

When asked our preferences on subjects to be covered at the APHA meetings, we gave them in this order:

1. Technics of working with people.
2. Success experiences in carrying out programs in various places.
3. Contributions which other fields can make.
4. Preparation of materials, including films, filmstrips, pamphlets, and posters.

Specific topics we asked for are:

1. More ideas on present programs; more on the order of the evaluation meeting at Health Education Section.
2. Group work—how to activate group—more accounts of actual work carried on—step-by-step progress, method, etc.
3. How to use TV to best advantage; any research or evaluation studies in health education.
4. Opportunity of discussing local programs on school and community health programs. Review of research carried on in various sections of country. Discussion of evaluation and methods used.
5. Human relations—how people behave, how to get people to change behavior, how do people perceive health educators.

The ways we like programs presented are:

1. Group discussion by members.
2. Work conference involving more than one session.
3. Panel of experts.
4. Clinic about problems of individual members.
5. Formal lecture or demonstration by an authority.
6. Series of short journal papers.

Some of us feel that we have as large a part in making decisions about the affairs of the Health Education Section as we would like—some of us do not. Which of us are satisfied?

More of us are satisfied than are not. Throughout the study, state people are more satisfied than are either local or national people. For example, state workers who have taken any active part in the APHA, such as serving on a committee or attending national meetings or business meetings are much more satisfied than are workers from the other levels. State workers who paid their way to APHA meetings were almost all satisfied with their participation, whereas about half of those from national and local agencies who paid their way were dissatisfied.

Those of us employed in official and educational agencies were more apt to be satisfied with our part in making Section decisions than the voluntary agency workers. Local voluntary agency people are particularly dissatisfied.

Satisfaction with our role in the APHA increases with age. Those of us under 40 are not as well satisfied as those over 40. Male local workers are especially dissatisfied with their part, while women local workers are for the most part satisfied. M.D.'s and Ph.D.'s are more satisfied with their part in making decisions than are people with lesser degrees.

Those of us who joined the APHA for reasons of professional stimulation are more satisfied with our part in the organization than those who joined for information about public health and new materials.

It is important to recognize that both our satisfied and our dissatisfied members see the promotion of health education as the most important activity of the Public Health Education Section. Those who are dissatisfied, however, seem to think that the Section should be doing more to promote health education. Those who see the Section primarily as a working unit of the APHA appear to be satisfied.

We studied ourselves. Now we know who we are; what we are doing in the APHA; and what we want. What has been done to utilize this information effectively?

Preliminary findings were presented to the section and discussed in November, 1953, at the APHA meeting. Action already taken includes: All members have had the opportunity to request committee activity via the Newsletter; a new committee on orientation of new members has been organized; chairmanships were offered to new and different people; a new committee on trends and developments in health education has been set up using central members as chairman of local groups; the membership committee has been more active in enlisting Fellows than ever before; and program planning for the 1954 annual meeting of the APHA is being based on expressed wishes in the study.

Where do we go from here—now the Public Health Education Section has the information to chart a course which will better meet the needs and interest of its members.

CLAUDIA B. GALIHER, M.P.H.,
Montgomery County Tuberculosis and Heart Association, Kensington, Md., Chairman
JEANNE E. WRIGHT, M.P.H.,
Montgomery County Health Department, Rockville, Md., Co-Chairman

Clearing House on Public Health Salary Information and Personnel Needs

3,500 Physicians in Public Health

The Public Health Service has completed a study in which was obtained as complete a count as possible of physicians engaged full time in public health, as well as of their characteristics, qualifications, geographic distribution, and medical school background.

In "Physicians in Public Health" in the April issue of Public Health Reports the findings of this study, except for the last named item, are summarized. From various sources information was secured on 3,484 public health physicians of whom all but one per cent were actually engaged in public health work. Nearly one-half of the total were in local health departments; one-fourth in federal service, largely the Public Health Service, and nearly one-fifth in state and territorial health departments. Fewer than 5 per cent were engaged in teaching.

There is detailed analysis of age, regional location, graduate degrees, and certification by the American Board of Preventive Medicine. More than a third of the public health physicians were reported to have graduate degrees, nearly 30 per cent were diplomates of the specialty board.

The study was carried out in the Division of Public Health Methods by Leonard Rosenfeld, M.D., M.P.H., who is now director of community evaluation studies of United Community Services of Metropolitan Boston, and Marion E. Altenderfer, statistician in the Division of Public Health Methods.

The same issue of Public Health Reports contains "Why and How State Health Departments Organize for Training" by Henry O'Brien, M.D., M.P.H., and "Sources of Nurse Supply for New Hospitals" by a group of four authors in the Service. Each of these articles has relevance for the readers of the Clearing House. Pub. Health Rep. 70:4 (Apr.), 1955, Public Health Service, Washington 25, D. C.

The Nurse and Job Satisfactions

The Southern New York League for Nursing, covering Bronx, Dutchess, Nassau, and Westchester Counties, recently made a study of job satisfactions of nurses in public health. Of more than 1,100 questionnaires sent out, slightly over one-half were returned. The 608 nurses replying included administrators, supervisors, consultants, staff nurses, and school nurse teachers chiefly. Forty-three per cent were employed by health departments, one-third by boards of education, and about one-sixth by voluntary agencies.

Nearly one-half of the nurses reporting had been in their present positions five years or longer, and nearly one-fourth at least two years. Fewer than 10 per cent had less than six months service in present jobs.

Of nearly 1,600 reasons reported for choosing public health nursing as a career, the most frequent, more than a fourth, were working hours that permit outside interests and activities. Next in importance was the opportunity to do preventive health work. The opportunity to develop initiative and to participate in community activities were next in importance, with salary ranking fifth as an incentive. Miscellaneous reasons totaled

about 10 per cent. Reasons for staying in public health nursing were in the same order of importance.

As to what the public health nurse likes about her job, working with families was reported most frequently in each group of employees. Personnel policies were next in importance for board of education employees, democratic atmosphere of agency for health department and voluntary agency employees. Opportunity for promotion was next in importance, except for board of education employees, among whom working with children was more important.

In contrast to more than two favorable items, the nurses reported slightly more than one "gripe" about their jobs. By far the most important item in the minus column for health department nurses was low salary. This was second in importance among voluntary agencies, negligible for those of boards of education. Pressure of work was first in importance for board of education and voluntary agency employees, second for those of health departments. Need to provide their own cars represented more than 10 per cent of unfavorable job aspects among both health department and board of education employees.

The nurses were also asked for suggestions for attracting nurses into public health. The most important single suggestion by each group was higher salaries, followed by salaries better standardized and commensurate with educational requirements. Among other relatively important suggestions were better policies on vacations, hours of work, and retirement, better public health nursing curricula, more adequate car allowances, more publicity for public health nursing among the general public, and better organization of promotion policies.

This study was recently reported to a recruitment subcommittee of the Committee on Professional Education of the American Public Health Association. It was recognized that this might be an atypical group from at least two standpoints, the length of time workers had been in their present jobs and the fact that they were all employed in a metropolitan area. However, it was agreed that similar studies applied to other groups of nurses and other groups of public health workers might well produce some significant results for recruitment planning.

Building on Military Experience

The National League for Nursing, with the support of the Rockefeller Brothers Fund, is studying the possibility of bringing into the civilian nursing picture former enlisted personnel with military experience and training in nursing functions. For example, about 600 Navy hospital corpsmen in an informal survey indicated they would like to remain in the health field.

The first step in the study was a questionnaire to some 15,000 enlisted personnel serving in Army, Navy, and Air Force hospitals, dispensaries, and other medical installations. For those who wish to become professional or practical nurses an experimental program will be set up in a selected school, which will be assisted in adjusting a curriculum. Records of graduates of this experimental school will be compared with those of diploma or practical nursing school graduates. The project is expected to take four years from the distribution of questionnaires to final achievement evaluation of graduates.

The project is more fully discussed in an article in the February, 1955, issue of Nursing Outlook of which reprints are available. 2 Park Ave., New York 16, N. Y.

Advanced Social Work Training

The Harvard School of Public Health, in cooperation with the Simmons College

School of Social Work, is offering a one-year's advanced curriculum for social workers in or planning to enter public health, mental health, or rehabilitation. The courses, leading to a degree of master of science in hygiene or master of public health, include biological and social ecology, maternal and child health, public health practice, mental health, medical care organization and administration, epidemiology, biostatistics, public social policy, intergroup relations, and supervision and consultation. The program is supported in part by a grant from the Office of Vocational Rehabilitation, U. S. Department of Health, Education, and Welfare.

This course, extending from September 6, 1955, to August 13, 1956, will include field observation and practice for the first three weeks and the final two months. It is expected that a limited number of fellowships for the full program will be available to selected candidates.

Requirements for admission to the program are:

1. Graduation from an approved school of social work with a master's degree, and
2. at least three years of acceptable experience in the field of medical or psychiatric social work including some administrative, supervisory, consultative, or teaching responsibilities.

Applications should be received by July 1, 1955. Further information from Elizabeth P. Rice, Associate Professor of Social Work in Public Health, Harvard School of Public Health, 55 Shattuck St., Boston 15, Mass.

New Catalogue of Training Films

The Communicable Disease Center has released a limited supply of a new Catalog of Motion Pictures, Filmstrips, and Slide Sets for use in training professional and technical health personnel. This brings up to date a 1949 issue for which correction notices were supplied through 1951. Available only to those whom it can assist in training public health workers. Address Chief, Training Branch, Communicable Disease Center, 50 Seventh St., N.E., Atlanta 5, Ga.

California Bacteriologist Training

The Division of Laboratories of the California State Department of Health has for a year been carrying on a training program for public health bacteriologists. Beginning in July, 1954, provision was made for nine student professional assistants who receive a six-month course of training, thus providing annually for 18 new public health bacteriologists to fill vacancies in the public health laboratories of the state. By the end of February, 1955, five had been trained and had passed their examinations for certification as public health bacteriologists. An additional eight were in training. The student assistants are selected from those completing their academic work for a baccalaureate degree.

Government Workers' Salaries

The February 25 issue of The Government Standard, the weekly bulletin of the American Federation of Government Employees, reviews briefly the case for a pay increase on the basis of salary and cost of living relationship. It finds that except for the lowest grades of salaries, currently below $2,950, no group has caught up in purchasing power with the purchasing power of their 1939 salaries.

These are the same basic data that were given consideration in the discussion in U. S. News and World Report of pay raises for members of Congress.

Later issues of The Government Standard discussed other factors indicating the need for a pay raise for government workers. This material might

well be in the hands of personnel officers and budget makers of health departments. The Government Standard, 900 F Street, N.W., Washington 4, D. C.

The Training Story in Ohio

"Ohio's Health" of the State Department of Health for January, 1955, is devoted to the department's training activities. Its text is "Public health is people—trained for their jobs." It attempts to answer the Why? Who? How? and Where? of training.

Included in the discussion is a section on minimum standards set by the department for qualification of local health departments as field training areas. Among the special groups for whom training is described are nurses, sanitarians, dentists for children, diabetes control staff, and public health clerks.

By way of results it is reported that in eight years, 6,100 persons have completed 135,000 days of Ohio Health Department-sponsored training, the equivalent of 370 years. In cooperation with WHO, eight foreign students are trained annually by the department—physicians, nurses, statisticians, sanitary engineers, among others.

Ralph E. Dwork, M.D., is the state health officer. Columbus 15, Ohio.

Rehabilitation Training Program

The Vocational Rehabilitation Act of 1954, designed to expand the resources for the rehabilitation of handicapped persons, provides funds for training of personnel. The Office of Vocational Rehabilitation within recent months has outlined the training and research opportunities available under the terms of the act and has closed its applications for the first year.

Funds are provided for rehabilitation training and rehabilitation teaching grants in medicine, nursing, physical therapy, and occupational therapy. Traineeships are also provided in vocational counseling, counseling psychology, and social work. Grants may also be made to states and public and other nonprofit agencies to assist, up to two-thirds of the total cost, in research, demonstrations, or other projects related to vocational rehabilitation.

Full details of the various grants available, the rules governing them, and application blanks may be obtained from the Division of Training, Office of Vocational Rehabilitation, Washington 25, D. C.

Health Education Assistantships

The University of Illinois is offering eight quarter-time teaching assistantships to qualified graduate students in 1955–1956 for work leading to the degree of master of science in health education. The assistantships carry a stipend of $750, plus free tuition. Further information from Howard S. Hoyman, Ed.D., Professor of Health Education, University of Illinois, Urbana, Ill.

Credit Lines

The Journal cannot furnish copies of items mentioned in Credit Lines. Please send requests to the addresses given.

The First of Its Kind

The "Tuberculosis Case-Finding Guide," produced by the National Tuberculosis Association, "is the first manual of its kind." Others have dealt with single specific phases of case finding, such as community-wide surveys or hospital admission x-ray programs, but the new attractive 56-page guide covers all aspects of case finding, including methods of screening both the well and the sick for tuberculosis with stationary, portable, or mobile equipment. The controversial subject of tuberculin testing is discussed in addition to the important topic of follow-up and evaluation of case finding. Illustrated with the prying character of Sherlock Holmes, the guide will be useful to those public health workers who share in the hunt for unknown tuberculosis cases. This means that health officers, health educators, community organizers, x-ray technicians, and executive secretaries of tuberculosis associations will want to obtain copies from their respective state tuberculosis associations.

More About Home Care for the Aged

To the many community agencies struggling with the problems of aiding elderly persons meet their needs, the "Report on Home Care for the Aged—a Project of the Central Bureau for the Jewish Aged" by Robert Morris of the Council of Jewish Federation and Welfare Funds will prove most helpful. It describes the project, the standards of evaluation and, wonder of wonders, what it does not and can not do, as well as what it does and what it costs. It is a clear and succinct report. Central Bureau for the Jewish Aged, 31 Union Square, New York 3, N. Y.; $1.

Health Heroes Series Modernized

Beginning with "Florence Nightingale and the Founding of Professional Nursing," the Metropolitan Life Insurance Company School Health Bureau is replacing its former black-and-white silent film strips in the Health Heroes Series with sound film strips in color. The Florence Nightingale, 15-minute, 35 mm film is available to school administrators and teachers, on loan, without charge. It is designed "as a means of helping students to understand, appreciate, and practice healthful living." It might also have value in recruiting student nurses.

The other figures in the Health Heroes Series, for each of whom a colored film is in preparation are Marie Curie, Edward Jenner, Robert Koch, Louis Pasteur, Edward Livingston Trudeau, and Walter Reed. The series includes a biographical pamphlet on each hero.

School Health Bureau, Metropolitan Life Insurance Company, One Madison Ave., New York 10, N. Y.

Commercial Health Insurance

The Health Insurance Council has released a skillfully written and fairly straightforward account of health insurance from the insurance company point of view. "The Health Insurance Story," written for health workers, is a comprehensive description of the policies and practices of the commercial health and

accident underwriters. As one might expect, the report is somewhat biased in its gently negative comments on independent plans. It is more polite to its larger competitors, the Blue Cross and Blue Shield Plans, and it fails to discuss some of the gross defects in commercial plans that have become a matter of public record in recent months. Nevertheless, the clear statement of strictly financial purposes and the explanations suggested for the exclusions and limitations of the typical commercial health insurance contract should help in understanding the role of commercial insurance in the voluntary health insurance movement. Information Division, Health Insurance Council, 522 Fifth Ave., New York 36, N. Y. Single copies free.

New Standards for Safe Painting

Infants and children frequently chew almost anything they can get their teeth on. Not infrequently this has resulted in substantial harm and occasionally death from chewing paint containing lead and other noxious substances.

As a result of stimulation by the American Academy of Pediatrics and of two years of planning, the American Standards Association has now released standards for residual surface coating materials to minimize hazards for children. This was developed by an ASA Committee on Hazards to Children under the chairmanship of George M. Wheatley, M.D., in which a number of official and voluntary health and industry organizations participated. The specifications limit the lead to 1 per cent of the solids and prohibit compounds of antimony, arsenic, cadmium, mercury, selenium, or barium. "American Standard Specifications to Minimize Hazards to Children from Residual Surface Coating Material," American Standards Association, 70 East 45th St., New York 17, N. Y.; 35 cents. Reduction for quantity orders.

Health Education Opportunities

The National Tuberculosis Association has prepared for local tuberculosis associations a brochure on "Health Education Opportunities." Many of these same opportunities or similar ones exist for other voluntary agencies and for health departments. Among the 14 activities listed as presenting health education opportunity is that of strengthening health departments. It says in part, "The public needs to be kept informed concerning the work of the public health department by other health agencies in the community, and all should work together to strengthen it."

Many of the ideas could either be used or adapted for use by other types of health agencies in pointing out possible opportunities for health education in a community.

Available from local tuberculosis associations or the National Tuberculosis Association, 1790 Broadway, New York 19, N. Y.

"Health Week" as Health Education

The Napa County Health Department recently began a Health Week in the county with a full-day of open house at the health building. Numerous exhibits were set up to explain the services of the department. At the same time a number of voluntary health organizations also held open house.

The annual report of the department was published simultaneously in the Napa Register. It consisted of a half page of brief figures on each of the services provided with an airplane stamp representing the monthly cost of the services to each person in the county. The caption of the report was "The people must be part of our health team if our work is to be effective."

Napa County, with a fast growing population of about 50,000, is one of the latest of the California counties to

establish a county health department. Nevertheless, it prides itself on being among the best in number and quality of services. Edward R. Pinckney, M.D., M.P.H., is health officer.

Wisconsin Catalogue of Health Films

Health Films (loaned without charge in Wisconsin) is a 72-page catalogue of films and film strips. It is produced by the Division of Health Education of the Wisconsin State Board of Health. Nearly 400 films and film strips classified in 14 main subjects are listed. Included is a brief description of the film, its running time, and the audience for which it is intended. Outside of Wisconsin it is useful chiefly for its suggestiveness and as a guide to the state and local departments planning film catalogues. Since Wisconsin residents may get the films from the State Board of Health, there is no information as to producer, price, etc. Wisconsin State Board of Health, Madison 2.

Greenwich Community Health Week

"This Is National Community Health Week: A Proclamation!" is the headline of a full-page ad in the Greenwich Time of Greenwich, Conn. The proclamation, telling of Jaycee Community Health Week in cooperation with the National Health Council, was made by the chairman of the Board of Health. He asked all citizens to join with Jaycees in learning of their existing health resources and making the best possible use of them.

The full-page ad was paid for by five industrial firms in the Greenwich area. In addition to the proclamation, it included a brief description of the chief health agencies of the community.

Greenwich is a suburban town of some 40,000 population. It has a full-time health officer and a number of well organized voluntary health organizations. Among them is the unique Greenwich Health Association which acts as the local representative of six national organizations, including those for tuberculosis, cancer, heart disease, social hygiene, crippled, and mental hygiene.

Tuberculosis Visual Aids

Among the material recently made available by the National Tuberculosis Association are:

"A Fair Chance"—A sound motion picture, black and white, 15 minutes, 16 mm and 35 mm. This television-length photoplay emphasizes the usefulness of former tuberculosis patients in business, industry, and society generally.

"Everybody's Problem"—A 48-frame silent film strip offers a pictorial study of tuberculosis—its cause, spread, treatment, control, and prevention. It is designed primarily for science, health, and social studies classes of schools.

"Within Man's Power"—Black and white sound picture, 28 minutes. Produced to commemorate the 50th anniversary of the founding of the National Tuberculosis Association, this film encompasses part of the history of the last 75 years. It includes the story of Dr. Trudeau's "Little Red Cottage," of Emily Bissell and the Christmas stamp, of Koch and discovery of the tubercle bacillus, of Dr. Flick and his attempts to convince his colleagues that tuberculosis is not a hereditary disease.

Each of these with guides for discussion leaders is available from state and local tuberculosis associations, or National Tuberculosis Association, 1790 Broadway, New York 19, N. Y.

A Convenient Speaker's Kit

"Speaking of Planned Parenthood" is a kit of facts for speakers and campaign workers in planned parenthood activities. Its virtue is its conciseness of language and its convenient pocket size. For those who need to plan a speaker's kit that tells the story in miniature, this is an excellent model. Designed for local planned parenthood groups, but might be shared on a limited basis with others. Planned Parenthood Federation

of America, 501 Madison Ave., New York 22, N. Y.

The Open Sanitarium for Sick Minds

"If we can change neurotic suffering into common unhappiness, we feel we have accomplished a great deal." This was one way a young doctor at the Austen Riggs Center (for sick minds) in Stockbridge, Mass., expressed its goal—bringing the patient back into reality from unreality.

But the chief purpose of the center, which cares for only 40 patients at a time, is to learn. In this pilot plant, or institute of advanced study, psychiatrists have the means, time, and privacy to find out what sickens the human mind and what can restore it. Here there are but four patients per psychiatrist as opposed to 400 in state mental hospitals.

The center and how it operates, how freedom and responsibility contribute to the patient's return to reality are told in the November 4 issue of the biweekly magazine, The Reporter (136 East 57 St., N. Y. 22, N. Y.). The author is Marya Mannes.

Worth Acquiring

"How To Make Health Visible" is the Cleveland Health Museum's "catalog of effective tools for promoting better health." It has been published, it announces, "so that you will find just the right exhibit, the right model, the right set of slides to buy or borrow, to promote health through knowledge." The catalog has been carefully produced, with clear descriptions, illustrations, and a comprehensive index. Cleveland Health Museum, 8911 Euclid Ave., Cleveland 6, Ohio; $1.

Cigarettes = Lung Cancer? is No. 220 in the series of Public Affairs Pamphlets. Here Pat McGrady, science editor for the American Cancer Society, reviews the present evidence for and against cigarettes as a cause of lung cancer. He refuses to answer the question whether one should give up cigarettes, preferring rather to let each one draw his own conclusions from the presently known facts. He tips the scales only to the extent of saying, "Prudent parents probably will not encourage youngsters to smoke without first having them study all the evidence pro and con relating to cigarette smoking and its possible link to heart disease and cancer, particularly lung cancer."

Public Affairs Pamphlets, 22 East 38th St., New York 16, N. Y.; 25 cents. Reduction on quantity orders.

"For Good Mental Health in Your Community" is a brief leaflet describing what a community needs to do as a community to provide the soil and climate that grows mental health. It makes pretty clear that mental health is the community's responsibility and not merely the doctor's. A local mental health association working for a stable environment free of social, moral, and physical dangers and uncertainties is the suggestion for action.

Single copies free from local mental health associations or, with a stamped addressed envelope, from National Association for Mental Health, 1790 Broadway, New York 19, N. Y. Quantity prices on request.

"United States Participation in International Health" is a brief exposition, largely in the form of charts, of the United States role in improving world health conditions. The Public Health Service's Division of International Health is the agency primarily charged with providing initiative, direction, and support to the international health programs in which the United States is participating.

The pamphlet describes the various United States activities, such as the

Foreign Operations Administration and the relation of the Public Health Service, the extent of public health personnel overseas, relationships with WHO, among other matters.

Some of the indications of the extent of United States participation are in the expenditures of nearly $350,000,000 in the period 1943–1954. Nearly 60 per cent of these expenditures were on a bilateral basis, the remainder multilateral. FOA health programs are active in 38 countries in underdeveloped areas. As of June, 1955, public health personnel positions overseas numbered about 450, of which about 50 were unfilled. In the year 1953–1954, nearly 800 foreign workers were trained in the United States, more than half receiving full-term training, the remainder, short-term.

PHS Publication No. 416, Public Health Service, Washington 25, D. C.

"Misguided Missiles" is the 1955 Book of Street and Highway Accident Data which the Travelers Insurance Companies publishes annually. Its theme is that the design of the driver has not kept pace with the design of the sleek, powerful machine, the automobile, which is a triumph of engineering technic. Hence, 36,000 lives lost and nearly 2,000,000 maimed because of the "misguided missile." This pamphlet should be in the hands of everyone who has anything to do with safety education. It is both humorous and caustic about the skill, manners, and reflexes of the automobilist. That "experience is the best teacher of bad driving habits" is indicated by the fact that more than 95 per cent of drivers involved in accidents resulting in death or injury had been driving a year or longer.

Copies are free, singly or in quantity, while they last. Nothing is copyrighted and permission to reprint is freely given. J. G. O'Brien, Travelers Insurance Companies, Hartford, Conn.

Annual Reports

The Engineers Council for Professional Development has issued its 22nd annual report, for the year ending September 30, 1954. It includes the reports of the numerous committees, many of them related to education, training, and guidance. Also fully reported is the community project in professional development being carried on in Cincinnati whereby the young engineer is helped to grow professionally rather than "settle down into a routine of mediocre technical assignments." Also included is a list of 747 accredited curriculums leading to first degrees in engineering in 149 schools of the United States, as well as a list of such curriculums in Canada. 29 West 39th St., New York 18, N. Y.; $1.

"Cook County Department of Public Health, Annual Report, 1954," emphasizes the current inverse trends in population growth of the county and the health department budget. While population is increasing rapidly, the trend in money available is downward. The purpose of the report to the citizens "is to help them realize the value of their investments in health services, and to determine what additional investments must be made to keep pace with the changing health needs of an increasing population."

The report is made up of photographs and brief accompanying text illustrating 11 broad classifications of the department's services.

The Cook County Department serves about 800,000 persons in 23 townships. It operates through a central office in Chicago and four district offices. There are, in addition, in the county, separate health departments in Chicago and five other municipalities.

The county health officer is John B. Hall, M.D., M.P.H.

Books and Reports

All reviews are prepared on invitation. Unsolicited reviews cannot be accepted.

Social Work Practice in the Field of Tuberculosis—Edited by Eleanor E. Cockerill. Pittsburgh, Pa.: University of Pittsburgh Press, 1954. 223 pp. Price, $3.50.

A major portion of this book is devoted to basic content which is applicable to any professional practice and any health problem. The specific application to social work practice and tuberculosis clarifies the concepts and theory presented. The content will be appreciated most by those who feel at ease in examining theory and principle, but a comfortable balance is achieved through discussion of concrete problems and specific services.

This book presents the proceedings of a week's symposium offered by the School of Social Work, University of Pittsburgh, in the summer of 1953, attended by social workers serving tuberculosis patients and programs. The symposium was a joint educational effort sponsored by the National Tuberculosis Association and the Pennsylvania Tuberculosis and Health Society. A number of federal, state, and local agencies had participated in the planning and financing and in enabling attendance of participants. The "faculty" represented the many disciplines essential to a well rounded presentation. The proceedings contain 16 papers, highlights of a panel, and four round-table discussions.

More than half the book is devoted to three major subjects—the field of tuberculosis, social institutions, and the community. "The Field of Tuberculosis: A Multidiscipline Approach to Its Problem" includes papers on progress and unsolved problems, the utilization of social sciences in solving welfare problems, and the cultural context of health education. Presentations of the health department, the voluntary health agency, the hospital, and social welfare agencies show the relatedness of the "Social Institutions Involved in Tuberculosis Control." A substantial section devoted to "The Concept of Community," the processes utilized in community organization, and "Understanding Agency Behavior" is recommended particularly to those who "experience frustration in their attempts to relate to the community as-a-whole and to respond to and participate in community process."

The portion of the book devoted to social work includes the development and administration of medical social work programs, problems encountered, the contribution of social casework to the study and treatment of the patient, the function of consultation, and social work in the field of public health. Those who experience difficulty in understanding social work in the health field will find these sections rewarding. The section on "Concept of Disability" presents the discussion of the concept and the examination of two cases by a multidiscipline panel. This section fills well its purpose of illustrating "the underlying assumptions which are essential for the interpretation and handling of the total problem of the disability group within society and of the problem as it is presented by an individual patient." Any person giving consultation service will be stimulated by the section on consultation. Those interested in staff training and those responsible for planning institutes and workshops will find Miss Cockerill's presentation of the thinking that preceded the symposium and her discussion

of a "goal-directed process" valuable. As director of the symposium and editor of this volume, Miss Cockerill is commended for the content, organization, and clear presentation of this educational program. GRACE WHITE

Standard Methods for the Examination of Water, Sewage, and Industrial Wastes — American Public Health Association, American Water Works Association, and Federation of Sewage and Industrial Wastes Associations. (10th ed.). New York: American Public Health Association (1790 Broadway), 1955. 522 pp., 24 Tables, 57 Figures. Price, $7.50 ($6.50 to members of all three associations).

The appearance of the 10th edition of Standard Methods for the Examination of Water, Sewage, and Industrial Wastes represents a great achievement by the cooperating organizations. In the fifty years since the first appearance of the volume in 1905, the scope of the work has continually been extended and the character of the scientific treatment has been improved. The 10th edition has almost 80 per cent greater volume than the 9th edition. The plan and arrangement of the material have been much improved. The scientific level of the discussions of the procedures and of the directions for their performance is considerably raised. For the trained scientists in well equipped laboratories, the treatment is magnificent. Unfortunately many of those who will be required to use these procedures are not highly trained and do not have laboratories which are elaborately equipped. For them the tone of the book may seem too high. It may be confusing. But it will be necessary for them to follow the instructions accurately if they are to benefit by the quasi-legal acceptance which the Standard Methods enjoy almost universally in the courts.

The book is divided into six parts. The first four parts are concerned with the physical and chemical examination of (1) Natural and Treated Waters in the Absence of Gross Pollution; (2) Sewage, Treatment Plant Effluents and Polluted Waters; (3) Industrial Wastes; (4) Sludge and Bottom Sediments in Sewage Treatment Processes and in Polluted Rivers, Lakes or Estuaries. Part 5 concerns Routine Bacteriologic Examinations of Water to Determine its Sanitary Quality. Part 6 covers Biologic Examinations of Water, Sewage Sludge or Bottom Materials. Much space is devoted to the newer instrumentation procedures. Many new procedures are introduced and some old methods of analysis are deleted, but procedures for the measurement of radiation in waters will not be found in Standard Methods at this time. JACK J. HINMAN, JR.

The Government of Metropolitan Miami. Chicago, Ill.: Public Administration Service (1313 East 60th St.), 1954. 194 pp. Price, $5.00.

The problem of growing metropolitan areas spilling over into county suburbs and making once separate suburban municipalities contiguous with the city is one that is now plaguing many areas. There are 26 municipalities in metropolitan Miami, Fla., and a recent referendum for complete consolidation failed. How can a community retain the benefits of neighborhood solidarity, local pride, and informal friendships of the smaller residential and shopping areas and still have the advantages available from a well organized, unified, and professionally staffed health, welfare, police, transportation, and related services?

A special Metropolitan Miami Municipal Board was created and financed to recommend solutions to this problem. At their request the Department of Government of the University of Miami engaged the Public Administration Service to do

a fact-finding survey and formulate recommendations under the University's supervision.

Regardless of whether one agrees with the recommendations as to whether the Police, Health, and Welfare Departments should operate partially or on a completely decentralized basis, with or without autonomy, it would be well worth studying the conclusions and how these conclusions were reached if one lives in an area with similar problems.

EDWARD PRESS

Pediatric Diagnosis—By Morris Green and Julius B. Richmond. Philadelphia, Pa.: Saunders (West Washington Square), 1954. 436 pp. Price, $10.00.

Fifty per cent or more of the pediatrician's practice today deals with well children. This fact has given rise to the fallacy that 50 per cent of pediatric training should concern the well child. As a result, some educators are beginning to worry about the student's ability to diagnose and treat the sick child. Condensed outlines of differential diagnosis by signs and symptoms attempt to alleviate this worry, but they are seldom satisfactory. The student needs the discipline of an integrated picture of disease—etiology, epidemiology, pathology, etc.—on which to graft his clinical experience. To give this in a book of differential diagnosis is most difficult even though the book may have merit as a didactic expedient.

The authors of this volume recognize the clinician's need for competence in history taking and in physical examination. Their first section, on history taking as a psychotherapeutic function, is good reading but it does not tell how to obtain a medical history. The next section on the pediatric physical examination, "an important psychotherapeutic function," is excellent—regional examination is described in detail and the chapters on the approach to the child and on developmental neurology are concise and outstanding. The section on signs and symptoms is long but it is incomplete. A final section on health supervision is the most helpful treatment of the subject which this reviewer has seen, although some may argue about its inclusion in a book on "Pediatric Diagnosis." A usable index to a book of this kind is important and it is difficult to compile; the authors have done an admirable job, but it reflects the incompleteness of the contents. The gaps in the latter may be partially filled by the many references inserted conveniently into the body of the text, if these are edited and used with discretion.

Possibly, this is the sort of book every man must write for himself after he has learned systematic medicine and practiced it at the bedside. Generally, this book on differential diagnosis is an excellent, but vain attempt to fill a real need.

STUART S. STEVENSON

Gesundheits-Atlas (Health Atlas)—By Herbert Gollner. Cologne, Germany: Deutsches Gesundheits-Museum, 1954. 40 tables. Price: DM 9, 80.

The Deutsches Gesundheits-Museum (Cologne, British Zone), a continuation of the Deutschen Hygiene-Museums (Dresden, Russian Zone), and best known for the creation of the transparent man and woman, has scored another first in the publication of this atlas.

In loose-leaf form, tables with a page size of 13½" x 10" present in an interesting combination of black-and-white or multicolored illustrations the main aspects of human anatomy and physiology. The printing is excellent, in the best German tradition. A comprehensive text gives explanatory notes on the reverse side of each sheet. About half of the atlas deals with the structure and function of different organs and systems generally, followed by practical applications as suggested for home nursing, first aid, etc.

Nutrition is well covered and so are early symptoms of contagious diseases. The health quality of different forms of exercises is shown by a novel point system, giving mountain climbing 100, bicycling 75, etc. The inclusion of constitution and character with special scoring units is interesting.

According to the European custom, nearly 30 different kinds of medicinal herbs are suggested for a well equipped medicine chest. Hygienic considerations of clothing and housing and work and play are artistically pictured, as well as the functions of a health department. The complete absence of the reproductive system and of maternal health subjects is regrettable.

An English edition is contemplated.

BRUNO GEBHARD

Fluoridation as a Public Health Measure—Edited by James H. Shaw. Washington, D. C.: American Association for the Advancement of Science (1515 Massachusetts Ave., N.W.), 1954. 232 pp. Price, $4.00 to AAAS members; $4.50 retail.

This is the third monograph published by the AAAS on the public health aspects of fluoride ingestion. The current volume discusses the effectiveness of water fluoridation in reducing dental caries and the safety and feasibility of this procedure. It consists of a series of 11 papers which consider various facets of water fluoridation: dental benefits which are considerable; safety for both children and adults; the engineering, chemical, and public health aspects; and the external effect of fluorides on the teeth in the reduction of dental caries. Nine of the papers are reviews of the various subjects covered, all by highly qualified authorities, many of whom have directly contributed to the original literature of fields relating to water fluoridation. The two other papers represent the results of specific medical studies in populations receiving fluoridated water. A 10-year study of individuals in a Texas community demonstrated that prolonged exposure to drinking water naturally containing 8 ppm fluoride ion produced no significant physiological effects, other than dental fluorosis, when compared to a fluoride deficient area. Another long-term medical study of children in a community receiving fluoride supplemented water at a level of approximately 1 ppm showed no adverse systemic effects. Consideration of all the available evidence presented in this book shows that water fluoridation at the suggested optimum level provides appreciable caries prevention and does not constitute a health hazard. The monograph provides a fine summary of the present knowledge of water fluoridation as a proved public health procedure, and as such will provide public health workers with answers to specific problems they will encounter as water fluoridation is considered in more and more communities across the country.

DAVID J. SMITH

The Dynamics of Group Action: Make Your Staff Meetings Count! 59 pp; and Leadership in Action, 54 pp.—By Daniel R. Davies and Kenneth F. Herrold. New London, Conn.: Croft (100 Garfield Avenue), 1954. Price, $2.50 each, or $27.50 for the series of 12 when available.

These brief handbooks, like their fellows entitled "Citizens Committees" and "Problem Solving for the Executive," are challenging efforts to assist administrators and board members who are responsible for professional organizations, such as health agencies, hospitals, or school systems. They are meant also for group leaders in business, industry, government, churches, and the Armed Forces. They deal with the ever-present matters of human relations, teamwork, and morale by way of putting the results of modern research and theory into practical recommendations for action.

The administrator, subadministrator,

or staff leader responsible for staff meetings will be asking himself such questions as these: Do I have staff meetings, and if not, why not? How well do we plan and evaluate our staff meetings? Am I aware that our staff meetings can be improved? Do we want to improve them, and if so why? The authors tell us, "It takes courage to experiment, and sometimes the results are not what we expect. But there is nothing more deadly in staff meetings than the continuous repetition of the same old procedures."

In regard to leadership, new concepts are emerging which if studied may produce important results. Administrators have a responsibility to make such studies and to pass on the results to their staffs. The higher a man's position in his organization, the greater is his responsibility to help his staff develop their leadership ability. In "Leadership in Action" there is much sound psychology. We read: "Effective leaders demonstrate a capacity to work cooperatively with others. . . . The leader speaks of the 'team' he works with and the members think of themselves as a team." And again, "Do you take yourself too seriously?" HUNTINGTON WILLIAMS

Silent Service Is Not Enough—American Water Works Association Public Relations Study. New York: AWWA (521 Fifth Ave.), 1954. 135 pp. Price, $1.50.

The Journal of the American Water Works Association has reprinted this series of articles from the December, 1954, issue of the journal. It represents a well outlined, easily readable summary of many practical suggestions in the field of public relations and information intended primarily for the executives and staff of water works' agencies. However, most of the material, with only minor modifications, would apply equally well to health departments and other health agencies. An appendix of facts, statistics, and ideas that can be of help in talks on water works subjects is also included. EDWARD PRESS

Books Received

Listing in this column acknowledges the receipt of books and our appreciation to the senders. Space and the interests of readers will permit review of some, but not all, of the books listed.

AIRBORNE CONTAGION AND AIR HYGIENE. William Firth Wells. Cambridge, Mass.: Harvard University Press, 1955. 423 pp. Price, $6.00.

ANTIBIOTICS ANNUAL 1954–1955. Edited by Henry Welch and Felix Marti-Ibanez. New York: Medical Encyclopedia, 1955. 1,150 pp. Price, $10.00.

CARE OF YOUR SKIN, THE. Herbert Lawrence. Boston, Mass.: Little, Brown, 1955. 95 pp. Price, $2.50.

CASIMIR FUNK: PIONEER IN VITAMINS AND HORMONES. Benjamin Harrow. New York: Dodd, Mead, 1955. 209 pp. Price, $4.00.

CHANGING ATTITUDES TOWARD THE DISABLED. Proceedings of the Sixth World Congress of the ISWC, Hague, September 13–17, 1954. New York: International Society for the Welfare of Cripples, 1955. 287 pp.

COLD INJURY. Transactions of the Third Conference, February 22–25, 1954. Packanack Lake, N. J.: Josiah Macy, Jr. Foundation, 1955. 226 pp. Price, $4.50.

DELINQUENT BOYS. THE CULTURE OF THE GANG. Albert K. Cohen. Glencoe, Ill.: Free Press, 1955. 202 pp. Price, $3.50.

EXPERIENCING THE PATIENT'S DAY. A MANUAL FOR PSYCHIATRIC HOSPITAL PERSONNEL. Robert W. Hyde. New York: Putnam's, 1955. 214 pp. Price, $2.20.

EXPERIMENTAL COOKERY FROM THE CHEMICAL AND PHYSICAL STANDPOINT. Belle Lowe (4th ed.). New York: Wiley, 1955. 573 pp. Price, $7.50.

GENERAL MICROBIOLOGY. William G. Walter and Richard H. McBee. New York: Van Nostrand, 1955. 345 pp. Price, $4.75.

GENERAL STATE FOOD AND DRUG LAWS. David

H. Vernon and Franklin M. Depew. Chicago, Ill.: Commerce Clearing House, 1955. 804 pp. Price, $17.50.

GESTATION. TRANSACTIONS OF THE FIRST CONFERENCE MARCH 9–11, 1954. Packanack Lake, N. J.: Josiah Macy, Jr. Foundation, 1955. 238 pp. Price, $5.00.

HEALTH IN THE ELEMENTARY SCHOOL. Herbert Walker. New York: Ronald Press, 1955. 228 pp. Price, $4.00.

HEATING VENTILATING AIR CONDITIONING GUIDE 1955 (Vol. 33). New York: American Society of Heating and Air-Conditioning Engineers, 1955. 1,680 pp. Price, $12.00.

HOUSING THE AGING. Edited by Wilma Donahue. Ann Arbor, Mich.: University of Michigan Press, 1954. 275 pp. Price, $3.75.

IMMUNITY AND HYPERSENSITIVITY, RELATIONSHIP TO DISEASE IN MAN. Report of the Ninth M & R Pediatric Research Conference. Columbus, Ohio: M & R Laboratories, 1955. 79 pp.

MAKING THE MOST OF MARRIAGE. Paul H. Landis. New York: Appleton-Century-Crofts, 1955. 542 pp. Price, $5.50.

MANUAL FOR TRAINING THE DISABLED HOMEMAKER. Rehabilitation Monograph VIII. Howard A. Rusk, et al. New York: Institute of Physical Medicine & Rehabilitation, New York University-Bellevue Medical Center, 1955. 167 pp. Price, $2.00.

MANUAL OF MEDICAL VIROLOGY, A. S. S. Kalter and J. E. Prier. Minneapolis, Minn.: Burgess Publishing, 1955. 127 pp. Price, $3.50.

MEDICAL PROGRESS 1955. A REVIEW OF MEDICAL ADVANCES DURING 1954. Morris Fishbein, Editor. New York: Blakiston Division, McGraw-Hill, 1955. 346 pp. Price, $5.00.

METHOD FOR EXPLORING BASES OF CURRICULUM DEVELOPMENT, A. League Exchange No. 6. Margaret L. Shetland. New York: National League for Nursing, 1955. 90 pp. Price, $1.25.

POMP AND PESTILENCE. INFECTIOUS DISEASE ITS ORIGINS AND CONQUEST. Ronald Hare. New York: Philosophical Library, 1955. 224 pp. Price, $5.75.

SEMI-MICRO ORGANIC PREPARATIONS J. H. Wilkinson. Springfield, Ill.: Thomas, 1955. 94 pp. Price, $2.00.

STANDARD METHODS FOR THE EXAMINATION OF WATER, SEWAGE, AND INDUSTRIAL WASTES. Prepared and Published Jointly by the American Public Health Association, American Water Works Association, and the Federation of Sewage & Industrial Wastes Associations (10th ed.). New York: American Public Health Association, Inc., 1955. 522 pp. Price, $7.50. Price to Members of APHA, AWWA, and FSIWA, $6.50.

TELEVISION IN MEDICAL EDUCATION. AN ILLUSTRATED HANDBOOK. Frank Warren. Chicago, Ill.: American Medical Association, 1955. 96 pp.

TRUANTS FROM LIFE. Bruno Bettelheim. Glencoe, Ill.: Free Press, 1955. 511 pp. Price, $6.00.

VITAL STATISTICS OF THE UNITED STATES 1952 (Vol. II). Mortality Data. U. S. Department of Health, Education, and Welfare, PHS, National Office of Vital Statistics. Washington, D. C.: Gov. Ptg. Office, 1955. 459 pp. Price, $4.00.

YOU AND YOUR RETARDED CHILD. Samuel A. Kirk, Merle B. Karnes, and Winifred D. Kirk. New York: Macmillan, 1955. 184 pp. Price, $4.00.

A Selected Public Health Bibliography with Annotations

Atmospheric Sewage—What England is planning to do to prevent future catastrophes from air pollution over her cities is reported by the chairman of the Government Committee. Decisions there may prove suggestive for those of us concerned with similar problems hereabouts. One striking observation may be worth tucking away: "while a man consumes something like 3 lbs of food a day and 5 lbs of . . . liquid . . . he consumes at least 30 lbs of air a day."

BEAVER, H. Clean Air. M. Officer 93, 11:149 (Mar. 18), 1955.

"Eternal Vigilance, etc."—In Chicago they work away at preventing infant deaths during the first week of life by continuous epidemiologic-type investigations into all possibly faulty poli-

cies, practices, and procedures. The central mechanism is a novel "alerting" system.

BUNDESEN, H. N. Effective Reduction of Needless Hebdomadal Deaths in Hospitals. J.A.M.A. 157, 16:1384 (Apr. 9), 1955.

CD Control, New Style—Most concepts concerning the nature, epidemiology, and control of microbial diseases were formulated during the 19th century, says this investigator. What we need are entirely new approaches to solve present-day problems, two of which he examines provocatively.

DUBOS, R. J. Unsolved Problems in the Study and Control of Microbial Disease. J.A.M.A. 157, 17:1477 (Apr. 23), 1955.

Wash that Melon!—Members of several families who ate watermelon, purchased in slices, all came down with a salmonellosis. Recovered slices proved to be alive with S. miami. How did the organisms contaminate the melon pulp? A whole melon was swabbed with a culture, then sliced with a clean knife. Next day innumerable colonies were counted in the plated pulp, and a contaminated knife also did a good job of seeding the culture into the melon middle.

GAYLER, G. E., et al. An Outbreak of Salmonellosis Traced to Watermelon. Pub. Health Rep. 70, 3:311 (Mar.), 1955.

Trailer Camps (British)—In addition to its comparative value for illuminating American sanitary practices, this review of British procedures and regulations also offers a revealing insight into the way the English language is spoken here and there. (For example see title below.)

HUNTER, W. The Caravan Site. M. Officer 93, 13:179 (Apr. 1), 1955.

Educational Road Blocks—Though this paper concerns itself with medical research, its implications reach out into other areas of health administration. Today, the common man holds the purse strings that feed—and control—research, says the writer, who proceeds to look at some threats to scientific investigation that may arise from this new state of affairs.

JANEWAY, C. A. Pediatric Research in the Age of the Common Man and the Exceptional Child. J.A.M.A. 157, 15:1289 (Apr. 9), 1955.

Nutrition and Morale—A number of partially disabled, aged people (in North Philadelphia) who could maintain themselves in their own homes if meals were provided are now being supplied adequate meals by a volunteer service. Only the cook is a professional, everything else the volunteers do. A fee of from 40 to 80 cents a day is charged.

JANS, P. Meals on Wheels. Nursing Outlook 3, 3:130 (Mar.), 1955.

Against Pontificating—Rarely are editorials singled out in this section. But here is one all among us who educate should take to heart. It ends "Optimism for preventing heart disease through weight control is not justified at present, but this should mean only redoubled effort to find other preventive measures of greater promise."

KEYS, A. Obesity and Heart Disease. J. Chronic Dis. 1, 4:456 (Apr.), 1955.

Two for the Record—"After ten years' experience . . . we . . . agree that better service to the individual, the family and the community is being provided through the comprehensive public health nursing program administered by the Department of Public Health and the Seattle Visiting Nurse Service."

LEHMAN, S. P., and BRYSON, S. We Combined Our Agencies Ten Years Ago (and) SEERING, E. Our Board Works with the Health Department. Nursing Outlook 3, 4:203 (Apr.), 1955.

Better than Common Cups, But—Most public drinking fountains are insanitary. Bubblers are the worst offenders. But even angle fountains with guards over the orifice become contaminated via "splatter" and aerosols.

MALLMANN, W. L., and FONTES, A. K. Bacteriological Study of Drinking Fountains. J. Am. Water Works A. 47, 3:235 (Mar.), 1955.

Staff Improvement—What is going on in the training of public health personnel? A report upon educational programs in the several states given at the Buffalo conference of State Directors of Public Health Training should prove of wide interest. Something along training lines is under way in every state.

O'Brien, H. R. Why and How State Health Departments Organize for Training. Pub. Health Rep. 70, 4:393 (Apr.), 1955.

Compose Your Own Heading—Mortality among bachelors is nearly two-thirds greater than among husbands, and that of divorced and widowed men is about double. Mortality among spinsters is a fourth greater than among married women and among the (lady) widows and divorcees, it is half as high again. These grim findings will bring forth new witicisms about the married state, it is hoped, to replace the old threadbare jokes.

Shurtleff, D. Mortality and Marital Status. Pub. Health Rep. 70, 3:248 (Mar.), 1955.

New Screening Method—A presumptive test for gonorrhea by macroscopic, plus microscopic, urine examination is offered as a case-finding aid especially for high-prevalence populations.

Taggert, S. R. Gonorrhea Detection by Urine Examination. Pub. Health Rep. 70, 3:245 (Mar.), 1955.

Anent Changing the World—For a stimulating, philosophic discussion about what to do with new ideas, this presidential address is recommended. In view of our vast ignorance, it is impossible to predict which new idea in a thousand will be profitable to pursue, the author cautions wisely.

Van Neil, C. B. On Radicalism and Conservatism in Science. Bact. Rev. 19, 1:1 (Mar.), 1955.

Fat for Fatties—A conclusion of this study of weight reduction via high-fat diets is that, for the very obese, the ends sought may be attained through individualized diets of higher caloric levels than those commonly considered to be sufficiently low in calories. The greater satiety value of high-fat diets and perhaps their inhibition of gastric mobility may both be of value.

Werner, S. C. Comparison Between Weight Reduction on a High-Calorie, High-Fat Diet and on an Isocaloric Regimen High in Carbohydrate. New England J. Med. 252, 16:661 (Apr. 21), 1955.

If additional information is desired regarding the articles listed in this Bibliography, please communicate directly with the publications in which they appeared; the addresses are furnished for your convenience.

Bact. Rev. (Bacteriological Reviews) Williams and Wilkins, Mt. Royal and Guilford Aves., Baltimore 2, Md.

J. Am. Water Works A. (Journal of the American Water Works Association), 521 Fifth Ave., New York 17, N. Y.

J.A.M.A. (Journal of the American Medical Association), 535 N. Dearborn St., Chicago 10, Ill.

J. Chronic Dis. (Journal of Chronic Diseases), Mosby, 3207 Washington Blvd., St. Louis 3, Mo.

M. Officer (Medical Officer), Whitefriars House, 72-78 Fleet St., London, E.C. 4, England.

New England J. Med. (New England Journal of Medicine), Massachusetts Medical Society, 8 The Fenway, Boston 15, Mass.

Nursing Outlook, American Journal of Nursing Company, 2 Park Ave., New York 16, N. Y.

Pub. Health Rep. (Public Health Reports), Supt. of Documents, Gov. Ptg. Office, Washington, D. C.

Association News

EIGHTY-THIRD ANNUAL MEETING

AMERICAN PUBLIC HEALTH ASSOCIATION

KANSAS CITY, MO., NOVEMBER 14–18, 1955

FELLOWSHIP IN THE AMERICAN PUBLIC HEALTH ASSOCIATION

The grade of Fellowship was established in the American Public Health Association in 1922. Professional workers in public health are eligible for election as Fellows under certain conditions and as an indication that they have achieved a recognized professional standing. As of May 1, 1955, the total membership of the Association was 12,243, including 2,935 Fellows, or 24 per cent of the total.

Questions are frequently asked regarding the requirements for Fellowship and the following statement outlines the provisions of the current By-laws governing qualification and election.

Persons who have been members of the Association for at least two years and who have reached their 30th birthday are eligible to apply if, in their opinion, they meet the conditions of one or more of the six clauses in the By-laws defining "an established professional standing." These six possible approaches are as follows:

a. A person who has rendered acceptable service for two or more years in a responsible public health position and who has been awarded in course a degree of Doctor of Public Health, Doctor of Science in Public Health, Doctor of Philosophy in Public Health, Doctor of Medicine with at least one year of graduate study in public health in a university, Master of Public Health, Diploma in Public Health, or other equivalent degrees according to standards approved by the Executive Board of the American Public Health Association.

b. A person who has been awarded in course an academic or professional degree involving training in public health and who has been regularly engaged in health work for at least five years, having rendered meritorious service as a health officer or in responsible charge of work in either a public or private health agency.

c. A person who has done notable original work in public health or preventive medicine of a character to give him a recognized standing.

d. A person regularly engaged in health work for at least five years, who has given evidence of special proficiency, who has attained a recognized standing.

e. A teacher of public health or one of its constituent sciences who has attained distinction as an expounder of the principles of public health or its constituent sciences. Such a teacher shall have had at least five years' experience as a teacher of public health subjects. Any years of experience as defined in paragraphs "b" and "d" that the applicant may have had shall be considered the equivalent of the same number of years' experience as a "teacher."

f. A person not covered by the above, who

has made substantial contributions to public health work in his chosen branch, who has attained a recognized professional standing.

Persons wishing to apply should request a Fellowship application blank from the American Public Health Association Membership Department, 1790 Broadway, New York 19, N. Y. Applications are accepted up to August 1 each year for consideration by the Governing Council at the fall meeting. It is important to make clear that members themselves should take the initiative in submitting such applications. This means that, although over 3,000 persons have been duly recognized with this grade of affiliation since 1922, there are other persons well qualified who have never initiated the process of applying for Fellowship. It should be clear that members should not await action by others if they wish to attain Fellowship. It is necessary and proper for them to take the first step.

An application for Fellowship requires sponsorship by two Fellows of the Section with which the applicant desires to be affiliated. These personal signatures are to be obtained by the applicant before submitting the completed application. The APHA office will assist, on request, in determining the Section with which prospective sponsors are affiliated. Applications from persons not wishing to be identified with a particular Section and requesting unaffiliated Fellowship may be sponsored by any two Fellows of the Association.

When properly sponsored and otherwise completed, the application is sent to the APHA office, after which the list of persons applying is published in the American Journal of Public Health, usually in the September issue, but in any case not less than 15 days before the date of the Annual Meeting. An established routine is followed for review by the Section Councils (unaffiliated applications are reviewed by the Executive Board) and by the Committee on Eligibility. This Standing Committee of the Association is made up of one Fellow from each of the 13 Sections, plus a chairman elected by the Executive Board. This group is under instructions from the Governing Council to examine each application in accordance with the provisions of the clause of the By-Laws chosen by the applicant, and to apply the criteria with precision in each case. Final election is by the Governing Council at the second meeting at each annual session.

The privileges of Fellowship include eligibility to serve as an officer of the Association or one of the Sections, chairman of an Association or Section Committee (over one hundred in number), a member of one of the four Standing Committees, a member of the Governing Council or Executive Board, and the right to vote on amendments to the Constitution. Some Civil Service and merit system records depend upon Fellowship in the American Public Health Association as an achievement deserving recognition in applicants.

The dues of Fellows are $15.00 annually, and include a subscription to the American Journal of Public Health and other services to which members are eligible. Life membership is available at $200.00 covering all future annual dues.

Applications for Fellowship to be considered at the 83rd Annual Meeting in Kansas City, Mo., November 14–18, should be filed with the Association as soon as they are completed, and in any case not later than August 1. For further information, address the Membership Department, American Public Health Association.

1955 GOVERNING COUNCIL NOMINATIONS

Section 1 of Article VII of the Association By-laws provides that the Nominating Committee for Elective Councilors, consisting of one representative elected by each section and a chairman appointed by the Executive Board, shall "present to the Administrative Office not less than six months before the Annual Meeting the names of at least 20 and not more than 30 Fellows of the Association selected with due regard to geographical and membership considerations as nominees for the Governing Council." Section 2 calls for publication of the nominees selected by the Nominating Committee not less than five months before the Annual Meeting.

The Nominating Committee has completed its assignment for this year by submitting the following 24 names as its selections of Governing Council nominees for 1955:

George Baehr, M.D.
Health Insurance Plan of Greater New York
New York, N. Y.

T. Elam Cato, M.D., M.P.H.
Dade County Health Department
Miami, Fla.

Gerald R. Clark, M.D., M.P.H.
State Department of Public Health
Santa Fe, N. M.

J. V. DePorte, Ph.D.
State Department of Health
Albany, N. Y.

Fred V. Hein, Ph.D.
American Medical Association
Chicago, Ill.

Roscoe P. Kandle, M.D., M.P.H.
City Health Department
New York, N. Y.

Robert A. Kehoe, M.D.
University of Cincinnati
Cincinnati, Ohio

John W. Knutson, D.D.S., Dr.P.H.
Public Health Service
Washington, D. C.

Paul A. Lembcke, M.D., M.P.H.
Johns Hopkins University
Baltimore, Md.

Mac H. McCrady, D.Sc.
Quebec Ministry of Health
Montreal, Quebec, Canada

Pearl McIver, R.N.
Public Health Service
Washington, D. C.

Seward E. Miller, M.D.
Public Health Service
Washington, D. C.

Dorothy B. Nyswander, Ph.D.
University of California
Berkeley, Calif.

Edward S. Rogers, M.D., M.P.H.
University of California
Berkeley, Calif.

Oswald K. Sagen, Ph.D.
State Department of Public Health
Springfield, Ill.

Charles L. Senn
City Health Department
Los Angeles, Calif.

Roy D. Smiley, D.D.S.
State Board of Health
Indianapolis, Ind.

Ellis D. Sox, M.D.
City-County Health Department
San Francisco, Calif.

Franklin H. Top, M.D., M.P.H.
State University of Iowa
Iowa City, Iowa

Waldo L. Treuting, M.D., M.P.H.
Tulane University
New Orleans, La.

Clair E. Turner, Dr.P.H., Sc.D.
National Foundation for Infantile Paralysis
New York, N. Y.

James Watt, M.D., Dr.P.H.
National Heart Institute
Bethesda, Md.

Charles L. Williams, Sr., M.D.
Beaumont, Tex.

Charles C. Wilson, M.D.
Yale University
New Haven, Conn.

Fellows of the Association are reminded that Section 3 of By-law Article VII states that "upon the petition of twenty-five Fellows the Nominating Committee shall add the name of any Fellow to the nominees selected by it, provided such petition is received not less than three months before the Annual Meeting." The closing date for the receipt of such petitions in the Administrative Office will be August 15, 1955.

The list of Governing Council nominees shown above, plus any that may be added by petition, will be carried on the official ballot that will be mailed to all members and Fellows in good standing by August 30.

The composition of the 1955 Nominating Committee for Elective Councilors is as follows: Chairman, Andrew Hedmeg, M.D.; representing Health Officers Section, Clarence L. Brumback, M.D.; representing Maternal and Child Health Section, Madeline M. Donnelly, M.D.; representing Public Health Education Section, Morey R. Fields, Ed.D.; representing School Health Section, Florence L. Fogle, R.N.; representing Dental Health Section, Donald J. Galagan, D.D.S.; representing Laboratory Section, J. V. Irons, Sc.D.; representing Public Health Nursing Section, Ella E. McNeil, R.N.; representing Engineering and Sanitation Section, Dwight F. Metzler, C.E.; representing Food and Nutrition Section, Marjorie M. Morrison; representing Epidemiology Section, John J. Phair, M.D.; representing Medical Care Section, Louis S. Reed, Ph.D.; representing Occupational Health Section, O. A. Sander, M.D.; representing Statistics Section, Howard West.

Meetings of Affiliated Societies

New York City

The Public Health Association of New York City met on March 31. At that time the association's plaque for outstanding service to the community was presented to Katherine Z. W. Whipple, health education director of the New York Tuberculosis and Health Association. She was cited for her work in developing many specialized programs in health education. In addition, Meritorious Certificate awards were presented to eight health workers in the city.

George Reader, M.D., director, comprehensive care and teaching program, New York Hospital-Cornell Medical College, succeeded Duncan Clark, M.D., professor of environmental medicine and community health, State University College of Medicine, Brooklyn, as president. Other officers, all in the New York City Health Department, are:

Vice-President—Ann Kent, M.D., health officer, Kips Bay-Yorkville District
Secretary-Treasurer—Abe Brown, assistant director, Bureau of Health Education (re-elected)
Representative to the APHA Governing Council—Helen M. Wallace, M.D., director, Bureau for Handicapped Children

The New York City association has for the past year been experimenting with three meetings a year, the latest of which was the annual meeting. The two earlier meetings were devoted to the problem of long-term illness.

Kansas

The Kansas Public Health Association met at the University of Kansas Union Building in Lawrence, March 30–April 1. The presidential address was given by Thomas R. Hood, M.D., health officer of the state. In this he stressed the interdependence of the entire health team and the reflection of success or failure in the attitudes of legislators.

Various other staff members of the department reported on other department activities—the development of a school health program cooperatively by the health and education departments, the development of a well organized sanitation program instead of running a "nuisance complaint business," the importance of research in a public health program.

Franklin C. Murphy, M.D., chancellor of the University of Kansas, and Vernon M. Winkle, M.D., director of local health services in the State Department of Health, stressed the partnership in public health of local, state, and federal governments. Also on the program were Mrs. R. S. Meeker, member of the Wichita Community Health Council described by Dr. Hood as "one of the best friends public health has in Kansas —a valuable champion."

An annual feature of the meeting is the presentation of the Samuel J. Crumbine Award at the annual Crumbine dinner. The award this year was made to Drs. Karl and Will Menninger, founders with their father of the Menninger Clinic which later became the Menninger Foundation, an international psychiatric center. President Hood made the presentation following an address by David Neiswanger, president of the foundation.

Officers elected are:

President—Dwight F. Metzler, chief engineer, Kansas State Board of Health, Topeka
President-Elect—C. Henry Murphy, M.D., Topeka
Vice-President—Willard R. Bellinger, D.D.S., director, Division of Dental Hygiene, State Health Department
Secretary-Treasurer—Evelyn Ford, director, Records Consultant, State Health Department

North Dakota

The North Dakota Public Health Association met in Fargo, March 28–29. Among the speakers was James E. Perkins, M.D., managing director, National Tuberculosis Association, whose theme was teamwork. "In this modern day and age, you either serve as a member of a team or you perish." Russ Hart, regional engineer of the Public Health Service, advocated more "grass roots in public health" primarily through the formation of community health councils. Robert M. Barr, M.D., Minnesota deputy health officer, called for a "critical evaluation" of what is being done and concentration on the most productive projects. Mrs. Esther Sweeney, director of community service, American Social Hygiene Association, pointed out that recent increases in juvenile delinquency had been much sharper in sparsely populated areas than elsewhere.

Attendance reportedly broke all records. The innovation credited in part for this result was the distribution of prizes at the two evening meals. In order to be eligible a person had to have completed his registration and be present when prizes were given. Various business firms donated the prizes.

Officers elected are as follows:

President—Carlyle D. Onsrud, executive director, Public Welfare Office, Bismarck
President-Elect—A. L. Hanson, Fargo
Vice-President—Bernardine Cervinski, director, Division of Health Education, State Health Department, Bismarck
Secretary-Treasurer—Mrs. Cora Shelstad, Finley
Representative to the Middle States Public Health Association—Eugenia Burr, Fargo
Representative to the APHA Governing Council—Melvin E. Koons, director, Division of Laboratories, State Health Department
Editor, Newsletter—Hal Neugebauer, Fargo

Northern California

The Northern California Public Health Association met at the Asilomar Conference grounds in Monterey County March 4–6, 1955, the first two-day meeting attempted by this group. Air pollution, suburbanization, and occupa-

tional health were among the broad problems discussed.

A Committee on Regionalization reported that it had been studying the problem of active participation in the affairs of the association by public health workers in the more remote regions of California.

Following are the officers for the coming year, each of whom except the treasurer, were re-elected:

President—Marian Dingley, bacteriologist, Contra Costa Health Department

President-Elect—Eugene Howell, public health engineer, Alameda Health Department

Vice-President—David Frost, M.D., health officer, Alameda Health Department

Treasurer—Charles Ruegnitz, director, Division of Sanitation, Alameda County Health Department

Secretary—Marian Leach, School of Public Health, University of California

Representative to APHA Governing Council—Ellis Sox, M.D., health officer, San Francisco

The association voted to hold its 1956 meeting in the same place, March 9–11.

Public Health Best Seller

The eighth edition of the "Control of Communicable Diseases in Man" came off the press in mid-January with an initial printing of 75,000 copies. By the end of April this supply had been practically exhausted and a second printing of 50,000 ordered. Twenty-six states and two territories ordered copies in amounts ranging from 250 to 3,500. In addition, one county and three cities ordered copies in quantity. The Army, the Navy, the Air Force, the Public Health Service, and the Office of Civil Defense obtained a total of more than 36,000 copies.

The volume is being translated into Japanese, Spanish, and Portuguese, the two latter by the Pan American Sanitary Bureau which serves as the Regional Office for the Americas for WHO. The British Ministries of Health were represented on the committee that prepared the report which have accepted it in substance as official. Her Majesty's Stationery Office has obtained 6,500 copies for use in Great Britain.

APHA membership application blank on page XXXI

83rd ANNUAL MEETING

HOW TO MAKE HOTEL RESERVATIONS FOR THE KANSAS CITY ANNUAL MEETING

A HOUSING BUREAU will be operated by the Kansas City Convention Bureau for the 83rd Annual Meeting of the APHA in Kansas City, Mo., November 14–18. Since all requests for rooms will be handled in chronological order, you are urged to send in your reservation as quickly as possible on the form below.

Hotel	Hotel and Rates Single	Double	Twin
Hotels immediately adjacent to Auditorium:			
Aladdin	$4.00– 7.00	$6.00–10.00	$ 8.00–10.00
Continental	5.00– 7.00	7.00– 9.00	8.00–12.00
Dixon	4.00– 5.00	6.00– 7.00	8.00– 9.00
Kansas Citian	3.50– 6.00	5.50– 8.50	6.00– 8.00
Muehlebach	6.50–13.00	8.00–13.00	10.00–15.00
New Yorker	5.00–10.00	7.00–12.00	9.00–12.00
Phillips	6.00– 7.50	8.00– 9.50	9.00–11.00
President	5.00– 9.00	8.00–11.00	10.00–13.00
Senator	3.00– 6.00	3.50–10.00	8.00–15.00
State	4.00– 6.00	6.25– 8.25	7.50– 9.00
Hotels within three or four blocks of Auditorium:			
Pickwick	4.50– 7.50	6.00– 9.00	6.50– 9.50
Plaza	2.00– 3.50	2.50– 5.00	
Hotels within short taxi ride from Auditorium (approximately 45¢):			
Alcazar	2.50– 3.50	3.00– 5.00	
Ambassador	4.00– 6.00	5.50– 7.50	5.50– 7.50
Bellerive	5.00– 8.00	7.50–10.50	9.00–10.50
Town House (65¢ cab fare from Auditorium)	5.00– 9.00	7.50–10.00	8.50–14.00

Rates for suites available on request.

HOTEL RESERVATION FORM

MAIL TO: Miss Mary Nugent
Housing, Convention and Visitors Bureau
1030 Baltimore, Kansas City 6, Mo.

PLEASE MAKE RESERVATIONS NOTED BELOW: (Please Print or Type.)

First Choice ..... Hotel Arrival: ....., at ..... a.m. ..... p.m.

Second Choice ..... Hotel Departure ....., at ..... a.m. ..... p.m.

Third Choice ..... Hotel

..... Single room @ $..... ..... Twin Bedroom @ $.....

..... Double Bedroom @ $.....

NAMES OF ALL OCCUPANTS: ADDRESSES:

....

....

....

MAIL CONFIRMATION TO: Signed: .....

Address .....

.....

City Zone State

Confirmation will be mailed within 30 days of receipt of this form by the Division of Housing, Convention Bureau, Kansas City, Mo.

KANSAS CITY TOURIST COURTS, TRAILER CAMPS, AND MOTELS

Good motel rooms are available at prices ranging from $4.00–$7.00 per day for two, $12.00 for four, within easy distance of Kansas City. You will be assigned to good, convenient motel rooms if you will indicate below your interest in such. Motel reservations will be made by the Housing Bureau and confirmed by the motel.

All the following are members of the Kansas City Motel Association:

Ace of the Hi-Way Court	8216–71 Highway
Annette Modern Cabins	81 and 61 Highway
Arrow Court	Highway 24 and 71 Cutoff
B-B Lodge	Highway 40 and Blue Ridge Cutoff
Capital Service Station and Cabins	116 and 71 Highway
Clay Motel	4018 N. Oak
Collins Court	9501 E. New 40 Highway
Crown Motor Court	4340 State-Kansas City, Kans.*
Davidson Courts	115 and 71 Highway
El Cabanas	½ Mile East of City Limits on No. 50
Flicklin Tourist Court	3647 State-Kansas City, Kans.*
Four-Acre Motel	8220 So. 71 Highway
Hi-Way Motel	71 Highway and Bannister
Gables Motel	6831 State-Kansas City, Kans.*
Holiday Inn Hotel	US 40 and 71 By Pass (5 miles East of Kansas City, Mo., and 3 miles South of Independence, Mo.)
Johnson Motel Tourist Courts	107 St. and 71 Highway
Kozy Kourt	36 Terrace and New 40 Highway
Leeds Motel Courts	3707 Raytown Road
Putthoff's Modern Cottages	40 Highway and Blue Ridge
Rainbow Auto Court	5912 E. 50 Highway
Royal Auto Court	7831–69 Highway
Skyline Court	3531 N. Oak, N. Kansas City
Sky-Vu Motel	New 40 Highway and Marsh, N. Kansas City
U. Smile Station No. 1	Old 40 Highway and Raytown Road
U. Smile Motel	50 Highway at 58th Street
U. Smile Court	40 Highway and Skiles
Waight's Tourist Camp	79 and 50 Highway
West Haven Motor Court	5250 State-Kansas City, Kans.*
Wornall Motel Tourist Court	8215 Wornall
Young's Motel	5024 Merriam Drive, Kansas City, Kans.*

* Kansas City, Kans., is one mile from Kansas City, Mo.

MOTEL RESERVATION FORM

MAIL TO: Miss Mary Nugent
Housing, Convention and Visitors Bureau
1030 Baltimore, Kansas City 6, Mo.

Please assign Motel accommodations for ..... persons arriving on November ....., and leaving on November .....

NAMES OF ALL OCCUPANTS: ADDRESSES:

....

....

....

....

MAIL CONFIRMATION TO: Signed: .....

Address .....

....
City Zone State

Employment Service

The following pages present information for those seeking public health personnel and for those seeking positions in public health. Other information concerning vacancies and personnel available is on file in the Association Office. Anyone wishing to have the benefit of this additional information can obtain it by writing to the Vocational Counseling and Placement Service of the Association.

POSITIONS AVAILABLE

Pediatrician—for Minnesota Department of Health. Pediatric consultant to physicians, hospital staffs, and hospital nurseries in problems of the immature and full-term infant and other pediatric problems and to nurses and schools on school health problems. Incumbent will be on the staff of the University of Minnesota Hospital to assist in limited clinical work, especially well baby clinics, and to act as liaison between the State Health Department and Department of Pediatrics of University. $8,580–$9,540. William E. Bender, Minnesota Civil Service Dept., 122 State Office Bldg., St. Paul, Minn.

Public Health Physician, Tuberculosis Specialist—To consult with mental hospitals and local health departments on establishment of programs. Four years' specialized tuberculosis experience and eligibility for New York State medical license required. $10,470–$12,510. Richard H. Mattox, Director, Office of Personnel Administration, New York State Dept. of Health, Albany 1, N. Y.

Public Health Physicians—Health officers for one urban, one county, and three multi-county health departments in Illinois; retirement plan or Social Security. Salaries approximately $10,000, dependent on training, experience, and performance record.

State Position as Assistant Chief—Division of Local Health Services; up to $860 per month; successful local experience and Board certification or eligibility therefor, desired; civil service, retirement. Excellent opportunity for experience in growing local health service program. Roland R. Cross, M.D., Director, Illinois Dept. of Public Health, Capitol Building, Springfield, Ill.

Veterinarian—Must be graduate of AVMA accredited school. Michigan license. $5,446 Director, Kalamazoo City-County Health Dept., City Hall, Kalamazoo, Mich.

Dental Hygienist—Graduate of approved school, to direct dental hygiene program in a health department housed in new modern building. $4,000, plus 8 cents per mile travel in own automobile. J. H. White, M.D., Director, Weld County Health Dept., Box 521, Greeley, Colo.

Public Health Educator—Two, with the Tuberculosis Institute of Chicago and Cook County. Experience in community organization and master's degree from accredited school of public health desired. Salary dependent upon experience and training. Director of Health Education, Tuberculosis Institute of Chicago and Cook County, 1412 West Washington Blvd., Chicago, Ill.

Health Educator—for State Health Department, Denver. College graduation with at least two years' experience in public health activities or master's degree and one year of experience. $321–$411. Personnel Officer, Colorado State Dept. of Public Health, 420 State Office Building, Denver, Colo.

Sanitarians (generalized program)—Junior Sanitarian—two years' college, plus public health training. $302–$364.

Sanitarian—approximately same as Junior except five years' experience required. $347–$421. For official travel, 7.5 cents per mile. D. D. Carr, M.D., Box 392, Las Vegas, Nev.

Bacteriologist—Salary $401–$456. For responsible supervisory and professional bacteriological work in a large city hospital laboratory. Master's degree in bacteriology, considerable experience in bacteriology laboratory or related fields. Experience may be substituted for the master's degree if in the appropriate field. Under Municipal Civil Service, Dept. of Personnel, Room 235, Municipal Courts Building, St. Louis 3, Mo.

Bacteriologist, Bureau of Laboratories, State Department of Health—Experience of one year in bacteriology or master's degree in bacteriology or related bacteriological sciences preferred. $3,770; training level at $3,016. Personnel Officer, Dept. of Health, 115 Colchester Ave., Burlington, Vt.

Director, County Health Unit—Full-time. Population 65,000. Travel allowance, vacation, and sick leave. Qualifications: Graduate of recognized school of medicine; licensed or eligible for medical licensure in Michigan; two years' experience in public health or one year graduate training in recognized public health school. E. J. Fatchett, Acting Director, RFD, Blissfield, Mich.

Staff Nurses—for rural county giving a generalized public health nursing program. Must have a degree and experience; also, must be eligible for California Public Health Nursing credential. $341–$376. Reimbursement for use of own car. Roswell L. Hull, M.D., Director San Benito County Health Dept., Health Center, Hollister, Calif.

Public Health Nurses—Generalized program in county health department with headquarters 17 miles west of downtown Detroit; near University of Michigan and Wayne University. $351–$381. Amelia Krause, Director of Nurses, Wayne County Health Dept., 10 Henry Ruff Road, Eloise, Mich.

Public Health Nurses—for generalized program in a combination agency, well qualified health officer; nursing supervision and in-service education integral part of program. Twenty-one working days paid vacation. $266 and up, according to qualifications. Director, Public Health Nursing Association, 105 City Hall, Des Moines, Iowa.

Public Health Nurses, Schoharie County Health Department, Schoharie, N. Y.—County of 24,000 population. Car furnished. $3,000–$3,500, generalized rural nursing program. Director of Nursing, Schoharie County Dept. of Health, Schoharie, N. Y.

Staff Public Health Nurses—for the only city-county health unit in Minnesota. Population 47,000. Health conscious community with excellent clinical and research facilities. Staff includes full-time health officer and other specialists, including 13 qualified staff nurses. Generalized program, including school health and bedside care on a demonstration and supervision basis. Active student program in cooperation with the University of Minnesota and the State Department of Health. Degree and minimum public health training. Car necessary; mileage 7½¢ per mile. Salary $325 with adjustments upward to $385, depending upon experience and qualifications. Miss Dorothy E. Anderson, Director of Public Health Nurses, Public Health Center, Rochester, Minn.

Qualified Public Health Nurses—Staff positions in generalized program, southwest Florida resort area. Merit system. Salary open. New air force base makes expansion of staff imperative. Director, Lee County Health Dept., Fort Myers, Fla.

Qualified Public Health Nurse—Staff position in generalized program, southwest Florida resort area. Salary open. Immediate vacancy. Director, Collier County Health Dept., Everglades, Fla.

Psychiatric Social Worker—for new Child Guidance Clinic in West Bend, Wis., 33 miles from Milwaukee. Responsibility includes intake, casework with parents of children in treatment, therapy of children, community consultation, and education. Team of psychiatric social worker, psychologist, and part-time psychiatrist. $4,572, Master's degree with psychiatric sequence plus two years' experience, some of which has been in child guidance. Amy Louise Hunter, M.D., State Board of Health, 1 West Wilson Street, Madison 2, Wis.

POSITIONS WANTED

Toxicologist-Pharmacologist — Ph.D. Seeking position in related fields. Experience includes medical school teaching, research directorship, and industrial toxicological research. Interests include research, voluntary, health, and administrative posts. **Box L-46,** Employment Service, APHA.

Sanitarian-Administrator—B.S. in dairy husbandry; graduate work in food technology, sanitary engineering, and public health. Thirty years' public health experience, including principal sanitarian and director, Division of Milk and Food Products. Just completing military assignment. Frederick H. Downs, Jr. in care of W. D. Clark, 3784 Norman Bridge Road, Montgomery 6, Ala.

Health Educator—B.S., M.P.H. Desires position as executive secretary of a voluntary health organization. Four years' experience as health educator with voluntary and official agencies, plus background as group worker and social case worker. **Box H.E.-66,** Employment Service, APHA.

Veterinarian—D.V.M. 25 years old, experience in all phases of poultry and meat inspection with U.S.D.A. **Box V-20,** Employment Service, APHA.

Public Health Educator—M.S.P.H. degree in Health Education. Male. Married, 30 years old. One year elementary teaching experience. Two and one-half years with county health department. Desires position with county or state health department or as school health coordinator. **Box H.E. 67,** Employment Service.

Commercial Advertisements

All communications on the following commercial advertisements should be sent to Burneice Larson, Medical Bureau, Palmolive Building, Chicago 11, Ill.

OPPORTUNITIES AVAILABLE

(a) Director, public health department; newly created post; town of 65,000 near large city, medical center; council-city form of government; $11,000–$13,000. (b) Medical director, industrial health council; woman physician eligible; medical center, South. (c) School physician; school population 21,000; East. (d) Coordinator, public health nursing and, also, director, program, child and maternal care; new program; co-educational college; California. (e) Public health nurse for faculty appointment; division of nursing, women's college; Midwest. (f) Public health nursing supervisors; $5,000–$6,000; Alaska. (g) Assistant professor, public health, university appointment; South. (h) Public health nurse to direct program, public schools, residential town near Chicago. (i) Sanitary engineer to supervise program, large county health department; $8,000; East. (j) Director of health education; state department; $500–$690. (k) Statistician; research activities of nonprofit medical care plan; Canada. (l) Medical officers, public health nurses, sanitary engineers, entomologists, nutritionists, industrial hygienists, health educators; foreign assignments. (m) Health educator; college town, California. (n) Public health bacteriologist; California. Burneice Larson, Medical Bureau, Palmolive Building, Chicago, Ill.

OPPORTUNITIES WANTED

WANTED—Opportunities for group of well qualified public health physicians, public health nurses, health educators, industrial hygienists, statisticians, sanitary engineers and laboratory workers. Candidates available for administrative, academic and staff appointments. All negotiations strictly confidential. Burneice Larson, Medical Bureau, Palmolive Building, Chicago, Ill.

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25 Years of Noise Abatement

A current advertisement for a prefabricated "Quiet Room" would seem to answer the question posed in a Journal editorial of 25 Years Ago. "What Is the Saturation Point for City Noise?" was a two-page editorial in the issue of July, 1930 (page 758). The Noise Abatement Commission of New York had recently been created. The editorial says hopefully, "Fortunately the Noise Abatement Commission is made up of men equipped by their life training to deal with the many ramifications of this modern public health problem and make New York a more comfortable, more livable city for all classes of people living in it."

And where are we a quarter of a century later? In a prefabricated, mobile, collapsible, expansible, soundproof "Quiet Room" in which to work.

News from the Field

WHO News

Executive Board Adopts Program

WHO's Executive Board at its Geneva meeting, January 18–February 11, unanimously approved a three-year program, covering 1957–1960, for recommendation to the Eighth World Health Assembly. Among its major fields of activity is the strengthening of national health services, described as covering "practically all branches of medical and health practice—preventive and curative, general and specialist, rural and urban." Training of national health personnel is planned as an important continuing function.

The program continues also to emphasize the participation and cooperation of all countries. Fostering the greatest possible self-reliance in national and community health services should be the aim in assisting in the development of their health services. Encouragement of national long-term health planning, coordination of health activities, evaluation of health work, and stimulation of productive research are further goals. The Executive Board was also mindful of the profound influence on WHO's programs of current scientific developments, particularly the health potentialities of atomic energy.

The 15th session of the Executive Board was opened by its chairman, Henry Van Zile Hyde, M.D., chief, Division of International Health, U. S. Public Health Service. He saluted WHO as "a symbol of what is best in international life."

Status of World Malaria Control

The February–March, 1955, issue of the WHO Chronicle is devoted to a discussion of malaria as a world problem. The brief history of the disease outlines its consequences in many directions, on the economic life of the areas affected, on birth and death rates, on agriculture, and even, according to some writers, on the decay of civilizations, particularly the Greek and Roman.

The conclusion is that malaria control needs to be integrated with the activities of agriculturists, industrialists, social scientists, economists, educators, and political and religious leaders. "But it has been repeatedly demonstrated that, in highly malarious countries, one of the first steps in the improvement of public welfare is the removal of malaria, which, like a blanket, stifles all aspects of human endeavour."

The 100-page mimeograph volume has an extensive bibliography of papers on malaria published by WHO.

Medical Teaching Equipment Manual

WHO and UNESCO have cooperated in the preparation of an inventory of teaching equipment for medical schools. The manual is intended chiefly for use in new medical schools. WHO was responsible for the entire technical presentation while UNESCO was responsible for translation and publication. The material listed under each of the eight subjects represents the consensus of some 20 professors from different parts of the world. Equipment used in the instruction of medical students is listed for anatomy, bacteriology, biochemistry, histology, pathology, pharmacology, physiology, and hygiene and public health.

"Inventories of Apparatus for Teaching Science," Part 5 (Medical Sciences) of Volume III, United Nations Bookshop, United Nations, or Columbia University Press, 2960 Broadway, New York 27, N. Y.; $2.75.

Training Palestine Refugee Nurses

The UN Relief and Works Agency for Palestine Refugees, in cooperation with the Jordan Government and the Lutheran World Federation, is carrying on a nurse training program for young Palestine refugees at the Augusta Victoria Hospital in Jerusalem. General nursing certificates were awarded to 34 refugees by the Jordan health minister in April. A total of 113 nurses will be trained under the program.

Courts Unanimous on Fluoridation

News from the Field is indebted to L. F. Menczer, D.D.S., public health dentist, Hartford (Conn.) Health Department for the material in the following summary of court decisions on municipal water fluoridation.

By the end of 1954 rulings favorable to fluoridation of public water supplies had been made by courts in 11 different states and by the U. S. Supreme Court. In each of the 11 cases the court upheld the particular fluoridation program adopted by local officials. The decisions may serve as precedents in future cases.

The city and the year in which the cases arose are:

1952	1953
San Diego, Calif.	Cleveland, Ohio
Baltimore, Md.	Tulsa, Okla.
Northampton, Mass.	Bend, Ore.
Fargo, N. D.	Greenville, S. C.
Chehalis, Wash.	Milwaukee, Wis.

1954
Shreveport, La.

In each instance except Northampton, the main issue was the contention that the fluoridation of municipal water supplies violates the 14th Amendment of the Constitution of the United States which indirectly protects persons from an invasion of their religious freedom by action of state and local governments. The plaintiff taxpayers argued "that the City Council's order did not give the water commissioners authority to purchase chemicals for the purpose of fluoridation, and in addition, that the order specifically mentioned only sodium fluoride while the water commissioners were also using sodium silico fluoride." The court found that the expenditure of funds for this purpose was not illegal and that either sodium fluoride or sodium silico fluoride could be purchased, concluding that "A decree is therefore to be entered dismissing the bill of complaint."

In San Diego the County Superior Court ruled that "The police power should be given the broadest application; and this power is increasingly exercised in keeping with advances made in the science of medicine and sanitation in recent years. Accordingly, courts are reluctant to place limits on what may be done in the interest of the health of the community. . . . No constitutional rights of any of the citizens of San Diego to freedom of religious belief would be invaded or violated by the adoption of the proposed program."

In an appeal to the California District Court of Appeals the judge ruled "that the City Council of San Diego has the authority to determine whether or not it should adopt a fluoridation program." Both the Supreme Court of California and the Supreme Court of the United States refused to review this case.

The Baltimore Court ruling stated, "We must rely on scientists and doctors and dentists in technical affairs of this kind, and when we have an honest opinion given after a careful study, I think it is entitled to great weight and should be adopted, so I find from the evidence that there is nothing in this proposed program that would be deleterious to the health of the people of Baltimore City, and I do not find from the evidence that the addition of sodium fluoride to the water supply is a calculated risk of any kind. . . . I find in this case that from the evidence none of

the constitutional rights of the plaintiff to freedom of religious belief would be invaded or violated by the adoption of this fluoridation program."

In the Cleveland case the city court ruled that: "A person's constitutional right to treat his health as he deems best and of the parents to raise their children as they deem best and to be free from medical experimentation and to exercise freedom of religion are all subordinate to the common good. Children's dental health is properly a province of community laws. . . . Based on the foregoing court decisions and other available legal authorities, the only possible conclusion is that upon compliance with local law, there is no legal obstacle to adopting and carrying out a fluoridation program." An Ohio Appellate Court affirmed this decision. The case is now before the Supreme Court of Ohio for final decision.

The Oklahoma Supreme Court upheld the decision of the Tulsa County District Court that "the city of Tulsa had the legal authority to add fluoride to its water supply to prevent tooth decay. . . . We think the weight of well-reasoned medical practice sustains the right of municipalities to adopt such reasonable and undiscriminating measures (fluoridation) to improve the public health." This decision was again upheld in the U. S. Supreme Court.

In Oregon a circuit judge "dismissed a temporary injunction that had been restraining the city of Bend from fluoridating its public water supply . . . in effect, ruling in favor of the legality of fluoridation."

In Wisconsin, in dismissing a suit against the city of Milwaukee the County Circuit Court ruled that "Fluoridation is a public health measure bearing a real substantial and reasonable relation to the health of the city"; that it is not adulteration of food and that it is not the practice of dentistry, medicine or pharmacy by the city. This decision was later upheld by the State Supreme Court.

The Shreveport, La., case led to the first direct ruling on fluoridation by the U. S. Supreme Court. A lower Louisiana Court had issued the only legal decision ever recorded against fluoridation. This ruling was reversed by the Louisiana Supreme Court. The fluoridation opponents took the case to the United States Supreme Court which held that "No substantial federal question was involved."

Cooperative Rehabilitation Project

A new concept in the handling of paraplegics and a new philosophy of medical care involving comprehensive treatment of the patient until he is fully restored to society and back to work is being pioneered in Boston. The Liberty Mutual Insurance Company is setting up an industrial rehabilitation department and neurosurgical service for paraplegics in the Haynes Memorial Department of the Massachusetts Memorial Hospitals in cooperation with the Boston University School of Medicine.

A 26-bed paraplegic unit equipped with all the facilities is being constructed at the hospital. The school and the hospital will set up a model teaching clinic. Chief of the new service is Donald Munro, M.D., present chief of neurological services, Boston City Hospital.

Liberty Mutual, one of the country's largest compensation carriers, began rehabilitation service for paraplegia in 1945. It has undertaken rehabilitation on 64 cases and completed work on 49 of whom 25 have returned to work. It is estimated that the net saving through rehabilitation of the 49 is more than one and three-quarter million dollars.

Simmons Memorial Lecture Created

The U. S. Army has established an annual "James Stevens Simmons Memo-

rial Lecture" to honor the late Brigadier General Simmons. The first lecture was given at the Walter Reed Army Medical Center of the Army Medical Service Graduate School on April 21. The speaker was John Dingle, M.D., professor of preventive medicine and associate professor of medicine, Western Reserve University, School of Medicine, Cleveland, Ohio. His topic was "Respiratory Disease Research and Military Preventive Medicine."

At the time of his death Dr. Simmons was dean of the Harvard School of Public Health, a position he took upon his retirement from the Army in 1946. For his work in World War II Dr. Simmons received the Distinguished Service Medal. He was one of the authors of "Global Epidemiology." Dr. Simmons was a Fellow of the American Public Health Association and in 1943 received its Sedgwick Memorial Medal. At the time of his death he was a member of the American Society of Tropical Medicine and member and past president of the American Academy of Tropical Medicine.

National Advisory Polio Committee

A National Advisory Committee to be in charge of the voluntary distribution of the Salk polio vaccine has been named by Oveta Culp Hobby, secretary of health, education, and welfare. It is headed by Chester Keefer, M.D., Mrs. Hobby's special assistant for medical affairs. Other members include Daniel Bergsma, M.D., state health officer of New Jersey and secretary, Health Officers Section, American Public Health Association; and George M. Uhl, M.D., health officer of Los Angeles.

Also members of the Advisory Committee are Philip S. Barba, M.D., diplomate of the American Board of Pediatrics; Robert P. Fischelis, secretary, American Pharmaceutical Association; Mrs. Newton P. Leonard, president, National Congress of Parents and Teachers; Frank W. Mundry, secretary, National Association of Retail Druggists; Basil O'Connor, president, National Foundation for Infantile Paralysis; Malcolm Phelps, M.D., general practitioner; Julian P. Price, M.D., diplomate, American Board of Pediatrics; and Mrs. Charles L. Williams, president, National Congress of Colored Parents and Teachers.

Family Studies Reports Available

The Milbank Memorial Fund is offering to readers of the Journal reprint copies of a two-part paper, "Family Studies in the Eastern Health District," while the supply lasts. This paper by Matthew Taback, Sc.D., deals with family structure and its changing pattern. It was originally published in the Milbank Quarterly of October, 1954, and January, 1955. Address Miss Enid M. Shultes, In Charge of Publications, 40 Wall St., New York 9, N. Y.; free.

Rockefeller Foundation Appointments

The Rockefeller Foundation through its president, Dean Rusk, announced several new appointments recently. Lindsley F. Kimball, Ph.D., a former vice-president becomes executive vice-president. Warren Weaver, Ph.D., director of the former Division of Natural Sciences and Agriculture, becomes vice-president for Natural and Medical Sciences.

At the same time the foundation has been reorganized into divisions in which the responsibility for program is placed in the hands of five directors. The divisions and their directors are:

Biological and Medical Research, Robert S. Morison, M.D.
Medical Education and Public Health, John C. Bugher, M.D., Sc.D.
Agriculture, J. George Harrar, Ph.D.
Humanities, Charles B. Fahs, Ph.D.
Social Sciences, Norman S. Buchanan, Ph.D.

Dr. Bugher has been on leave from the foundation for four years to serve as director, Division of Biology and Medicine, U. S. Atomic Energy Commission. Dr. Buchanan returns to the foundation after four years as professor of economics, University of California.

California Dedicates Headquarters

The State of California Department of Public Health recently moved to its new headquarters at 2151 Berkeley Way, Berkeley 4, adjoining the University of California and including all headquarters' offices and laboratories except the Section on Vital Records at 631 J St., Sacramento 14.

Dedication ceremonies on April 28 recognized the 85th anniversary of the department which was founded on April 14, 1870. Malcolm H. Merrill, M.D., state director of public health, presided at the ceremonies. The principal address was made by Charles E. Smith, M.D., dean of the University of California School of Public Health and president of the State Board of Health. Other participants were Richard F. Boyd, M.D., regional medical director, U. S. Public Health Service, San Francisco; Wilton L. Halverson, M.D., formerly state director of public health; and Reginald M. Atwater, M.D., executive secretary, American Public Health Association, New York City. Besides Dr. Halverson, two former directors were present, namely, W. H. Kellogg, M.D., and Walter M. Dickie, M.D.

Social Work Groups Consolidate

The National Association of Social Workers, now in process of organization, will be a fullfledged reality by October 1, 1955. Following six years of negotiation, seven organizations have agreed to form a single national association of 20,000 professional social workers in 150 local chapters.

The seven groups that are disbanding to form the new association are:

- American Association of Group Workers
- American Association of Medical Social Workers
- American Association of Psychiatric Social Workers
- American Association of Social Workers
- Association for the Study of Community Organization
- National Association of School Social Workers
- Social Work Research Group

The new association will organize five sections: Group Work, Medical Social Work, Psychiatric Social Work, School Social Work, and Social Work Research. It will operate through six commissions on: Social Work Practice, Social Work Education, Personnel Standards and Practices, Interpretation, Social Policy and Action, and Recruitment for the Profession, respectively.

The proposed by-laws and memorandum of understandings were adopted by an Inter-Association Council in November and will be acted upon finally at a meeting in New York City in June.

The basic annual dues of the association are to be $22, of which $2 is returned to the chapter. In addition, a charter membership fee of $3 will be paid by all members during the first year of the association and chapters may establish chapter dues up to $10. Both national and chapter dues will be payable to the national treasury with appropriate refund to the chapter.

Further information from the temporary Inter-Association Council, One Park Ave., New York 16, N.Y.

Survey of School Health Services

A three-year survey of the value and effectiveness of school health services in New York City is under way. The survey, made possible by a grant from the Public Health Service, is being made by

the Welfare and Health Council under the direction of William C. Spring, Jr., M.D., DeLamar professor of public health, Columbia University School of Public Health and chairman of the council's health division. A 10-man committee guiding the development of the project is headed by the commissioner of health, Leona Baumgartner, M.D., and the superintendent of schools, William Jansen, Ed.D.

The project is planned to make an intensive study of the ways in which medical examination of school children can be improved and how health defects that are found can be remedied. Also being studied is the extent to which family and school and health authorities understand the content and responsibility of the school health program. In the course of the study it is hoped to develop parent, teacher, and community educational programs and to involve both professional and community leaders as a means of improving the health of school children through better understanding.

New York Poisoning Control Center

The New York City Department of Health recently announced the creation of a poisoning control center to provide practicing physicians and hospitals reliable information, diagnostic facilities, and aid for the treatment of persons who have been poisoned. Particular attention will be given to the problem of accidental poisoning among children. Many of the superintendents of the hospitals in the city have already appointed poison control officers to work with the Health Department and the hospital staff.

Chicago has had a similar program in operation for over a year. More recently, several additional similar centers, not all of them directly related to health departments, have been in operation or under development in the following cities: Baltimore, Boston, Cincinnati, Dallas, Durham, Indianapolis, Louisville, Phoenix, and Washington, D. C.

Interstate Milk Conference Elects

The National Conference on Interstate Milk Shipments at its biennial meeting in Memphis, Tenn., in March elected the following officers:

Chairman of the Executive Board—H. L. Hortman, Louisiana State Department of Health

Treasurer—H. J. Barnum, Bureau of Health and Hospitals, Denver

Secretary—Harvey J. Weavers, Wisconsin State Department of Agriculture

Members of the executive board represent health departments, departments of agriculture, industrial groups, and academic institutions.

Committee on Research Administration

Arising out of certain of its member agencies, a Committee on Research Administration has been established in the National Health Council. At an initial meeting on April 1, it was agreed to continue the committee for an indefinite period.

At the second meeting on May 11, there was a discussion of application processes, budgeting for individual grants, and reporting processes.

The Committee on Research Administration is made up of the research directors of 13 council members that support research through grants to institutions or research workers. Its chairman is Morton D. Schweitzer, Ph.D., scientific director, Muscular Dystrophy Associations.

Schools of Public Health Elect

The Association of Schools of Public Health meeting at the University of Minnesota on March 30 and 31 elected the following officers:

President—Charles E. Smith, M.D., dean, School of Public Health, University of California

Vice-President—E. L. Stebbins, M.D., dean, Johns Hopkins School of Hygiene and Public Health

Secretary-Treasurer—James A. Crabtree, M.D., professor and head, Department of Public Health Practice, Graduate School of Public Health, University of Pittsburgh

New Medical Research Fellowships

In order to stimulate research interest among medical students, the Tobacco Industry Research Committee announces an experimental fellowship program. For the first year, $25,000 has been made available. The Scientific Advisory Board may recommend its continuance.

Fellowships of $500 for the term will be awarded to regular or graduate students interested in devoting their summer or "off-term" time to basic research in experimental or clinical sciences. No limitation is placed upon the field of research within the areas designated. Recipients will be selected by the deans of the medical schools.

Scientific director of the Tobacco Industry Research Committee is Dr. Clarence Cook Little, Roscoe B. Jackson Memorial Laboratory, Bar Harbor, Me.

Lasker Medical Journalism Awards

Three writers were presented with the 1954 Albert Lasker Medical Journalism Awards at an awards luncheon of the Albert and Mary Lasker Foundation in New York on May 23. The winners, who each received $1,000, an engraved scroll, and a silver statuette of the Winged Victory of Samothrace, are:

Alton L. Blakeslee, science writer, the Associated Press in New York, for a series of articles distributed to AP newspapers. The series, "Secrets of Life," described basic scientific research at the Marine Biological Laboratories, Woods Hole, Mass.

John Robert Coughlan, staff writer, Life, for "Tracking the Killer," describing the development of the Salk polio vaccine.

Milton Silverman, free lance writer, for "the Drug that Fooled the Doctors" in the Saturday Evening Post. The article describes the first experimental use of the Rauwolfia drugs in hypertension and mental disease.

The awards were established in 1946 to honor "outstanding reporting on medical research and public health in the newspaper and magazine fields." They are administered by the Nieman Foundation for Journalism, Cambridge, Mass.

Correction

The Bookshelf on Foods and Nutrition in the April Journal, pp. 419–428, has two minor errors: (1) page 422—Recommended Dietary Allowances (Food and Nutrition Board, National Research Council) is priced at $.50; (2) page 427—Canned Food Reference Manual (American Can Company) is out of print and no longer available except in libraries.

PERSONALS

THOMAS LEE ALLMAN, M.D., Rear Admiral, U. S. Navy (Ret.), has been appointed health director for Prince William, Fauquier, and Rappahannock Counties, Va.

JOSEPH L. T. APPLETON, D.D.S., D.Sc.,† dean emeritus of the Thomas W. Evans Museum and the School of Dentistry, University of Pennsylvania, received for a lifetime of scholarship and research in dentistry the 1955 and second annual Research Medal Award of the Columbia Committee on Dental Education at the recent annual "Dean's Day" of the Dental Alumni of Columbia University.

STANLEY T. BARKER,† assistant director, Bureau of Environmental Sanitation, New York State Department of Health, Albany, N. Y., has retired and will do engineering work connected with the program for construction of air bases in Spain. He has been succeeded by MEREDITH H. THOMPSON, Dr. Eng.,* former chief, Sanitation Training Section, and assistant director, Office of Professional Training.

LYNN BYRNE,† former administrative officer,

* Fellow.
† Member.

Lakes Region Health Department, North Dakota State Department of Health, Devils Lake, is now in the same position, Southwestern District Health Department, Dickinson.

M. K. DEHNEL, M.D., D.P.H.,† former health officer, Assiniboia-Gravelbourg Health Region, Saskatchewan Department of Public Health, has been appointed to the Regina Rural Health Region, succeeding IRIAL GOGAN, M.D., who has been appointed director of the Hospital Standards and Administration Division of the department.

ANN L. ETTLINGER, R.N., M.A., former assistant supervisor, Philadelphia Department of Health, is now on the staff of the Bucks County (Pa.) Department of Health.

ALAN FOORD, M.D.,* former research associate, Maternal and Child Health, Johns Hopkins School of Hygiene and Public Health, has been appointed clinical professor of maternal and child health, University of California, School of Public Health, assistant health officer and director, Maternal and Child Health, Berkeley Health Department, and director of school health services, Berkeley Public Schools.

ZILPHA C. FRANKLIN, formerly in the Bureau of Health, Equitable Life Assurance Society of the United States, has joined the staff of the National Health Council, New York City, as administrator of the Health Career Horizons Project.

ROBERT V. FREI, formerly in the State Health Department, has been appointed statistician, Rensselaer County (N.Y.) Health Department.

SYLVAN S. FURMAN, former director of community relations, New York City Youth Board, is now assistant director, New York City Community Mental Health Board.

HAROLD FARNSWORTH GRAY,* for the past 25 years engineer-manager of the Alameda County (Calif.) Mosquito Abatement District, has retired and is living on a ranch near Oroville, Butte County.

PAUL D. HANEY,* of the engineering firm of Black and Veatch, Kansas City, Mo., was awarded the 1954 Godell prize of the American Water Works Association at the annual meeting of the association in Chicago, Ill., in May for his paper, "Theoretical Principles of Aeration." This was published in the April, 1954, issue of the AWWA journal. The Purification Division of AWWA has also designated Mr. Haney to receive its award for his report, "Characteristics and Effects of Synthetic Detergents."

* Fellow.
† Member.

EDWIN L. HARMON, M.D., remains as director of Grasslands Hospital, Westchester, N. Y. Information received that he had joined the staff of the Commission on Chronic Illness as reported in the May Journal was incorrect. He has accepted assignment as a member of the commission.

ROBERT R. HARRIS,† sanitary engineer director, chief of the Water Pollution Control Basin Office, Portland, Ore., has been appointed chief, Water Supply Branch, Division of Sanitary Engineering Services, Public Health Service, Washington, D. C.

GORDON H. HATCHER, M.D., D.P.H.,* director of the Project for Prevention and Control of Indigent Disability in Washington County, Md., for Community Research Associates, continues as assistant professor of Public Health Administration, University of Toronto, on a part-time basis, in charge of the program in Medical Care Administration.

MAJOR GENERAL SILAS B. HAYS, Army Medical Corps, former Deputy Surgeon General, has been nominated by President Eisenhower to be the Surgeon General of the Army, effective June 1, 1955, succeeding MAJOR GENERAL GEORGE E. ARMSTRONG, retired from active duty.

WILLIAM E. HOLY,† water supply engineer, San Francisco, (Calif.) Regional Office, has been named assistant regional engineer, Dallas, Tex., Regional Office, Public Health Service.

JOHANNE JOHNSON, M.S.P.H.,* former director of adult education, District of Columbia Tuberculosis Association, is now a public health educator, Pennsylvania Department of Health, Harrisburg, Pa.

RALPH J. JOHNSON, M.S.,† senior sanitary engineer, chief of housing hygiene activities, Division of Sanitary Engineering Services, Public Health Service, has resigned to become director, Research Institute and Construction Department, National Association of Home Builders, Washington, D. C.

JAMES LIEBERMAN, D.V.M.,* veterinarian with the Public Health Service's Communicable Disease Center, Atlanta, Ga., began on April 6 a two-month assignment as veterinary public health consultant to the European Regional Office of WHO in Geneva.

BENZION LIBER, M.D., Dr.P.H.,* was honored on his 80th birthday, March 13, 1955, with a dinner at the Empire Hotel, New York City, attended by 300 of his friends and admirers. ABRAHAM STONE, M.D., was the principal speaker.

ESMOND R. LONG, M.D.,* director of the University of Pennsylvania's Henry Phipps Institute for the Study, Treatment, and Pre-

vention of Tuberculosis and director of medical research, National Tuberculosis Association, has received the 1955 Philadelphia Award of a gold medal and $10,000, established by the late Edward W. Bok.

FRANCIS E. LONGAN† is sanitary engineer, Directorate of Installations, Headquarters, Air Defense Command, Colorado Springs, Colo.

ALVIDA LOWER, M.P.H.,† former assistant and educational director, Des Moines Public Health Nursing Association, is now educational director, Tulsa County (Okla.) Public Health Association.

MALCOLM A. MASON, M.P.H.,† is health education consultant, Indiana State Board of Health, Indianapolis.

GORDON E. MCCALLUM, C.E.,* sanitary engineering director, chief of the Office of Health Emergency Planning, Public Health Service, has been appointed chief of the Service's Water Pollution Control Program. JOHN B. HOZIER, M.D., medical consultant, has succeeded him in the Emergency Planning Office.

MARK A. MCCLOSKEY, former director of the New York City Board of Education's Bureau of Community Education, has been appointed chairman, New York State Youth Commission by Governor Harriman.

BENJAMIN F. MILLER, M.D.,† former research physician, Department of Medicine, Harvard Medical School, has been appointed director, May Institute for Medical Research, Jewish Hospital Association, Cincinnati, Ohio.

MARGARET J. MILLER, M.D., M.P.H.,† former school physician of the department, is health officer of the Sunset District, San Francisco Department of Public Health, the first district to have a full-time health officer.

IRVING MUSHLIN,† director, Division of Personnel and Training, National Tuberculosis Association, has resigned to become assistant to HERBERT R. EDWARDS, M.D.,† executive director of the New York Tuberculosis and Health Association, and WALTER G. JAMES, associate in the NTA Christmas Seal Sale Division, has resigned to join the staff of the American Cancer Society (New York City) as a national representative.

WILLIAM F. NEUMAN, Ph.D., associate professor of pharmacology, University of Rochester, Rochester, N. Y., recently received the $1,000 Eli Lilly and Company Award in Biological Chemistry at the 127th national meeting of the American Chemical Society in Cincinnati for his "numerous and important contributions to our knowledge of bones and teeth, their composition, the manner of their formation and the mechanism of calcification."

LAURA K. PASSMORE,* former assistant director of education, District of Columbia Division, American Cancer Society, has been appointed chief of health education, Fife-Hamill Memorial Health Center, Philadelphia, Pa.

CAPTAIN PAYNE H. PERCEFULL, MSC,† is now laboratory officer, Clinical Laboratory, U. S. Army, Fort Sill, Okla.

ROBERT H. RILEY, M.D., Dr.P.H.,* director and chairman of the Board of Health, Maryland State Department of Health (Baltimore) since 1927, has announced his retirement as of January 1, 1956. He has been a member of the department since 1914.

G. CANBY ROBINSON, M.D.,† executive secretary of the Maryland Tuberculosis Association (Baltimore), retired on April 1, 1955.

RALPH R. SACHS, M.D.,* health officer of Richland, Wash., has resigned to become chief, Division of District Health Services, Los Angeles City Health Department, Calif.

LEO ST. MICHAEL, former district sanitary engineer and business manager for the Southwestern District Health Department, is now in the Division of Environmental Sanitation, North Dakota State Department of Health, Bismarck.

MIGNON SAUBER, former public welfare research analyst, U. S. Children's Bureau, is now senior research associate, Bureau of Special Studies, Research Department, New York City Welfare and Health Council.

SRISH CHANDRA SEAL, M.B., Ph.D.,* professor-in-charge, Department of Epidemiology, All India Institute of Hygiene and Public Health, Calcutta, has been awarded the 1952 "Coates Gold Medal" of Calcutta University for advancement of medical science through research during the preceding seven years and has been elected Fellow of the National Institute of Sciences of India, the highest scientific body in the country.

ALBIN SHEPORAITIS, M.P.H.,† former public health educator, Bureau of Engineering, Detroit Department of Health, has been appointed a Public Health Educator, Pennsylvania Department of Health, Harrisburg.

IMELDA SPRATT,† former consultant nurse on the licensing program for children's homes, Maternal and Child Health Division, Oregon State Board of Health, has resigned to supervise the field program for university public health nursing students in Oregon for the Portland Public Health Nursing Association.

PAUL H. STEVENSON, M.D., Dr.P.H., Senior

* Fellow.
† Member.

Surgeon (Ret.), Division of Mental Health, Public Health Service, is in Korea serving as health consultant for the American-Korean Foundation.

WILLIAM R. STINGER, M.D., M.P.H.,† formerly venereal disease control officer, Wayne County (Mich.), on assignment by the Public Health Service, has returned to his earlier position as director of services, Florida Crippled Children's Commission, Tallahassee.

NETTIE A. ULMER, R.N.,† is public health nurse, Douglas County Health Department, Roseburg, Ore.

DOUGLAS D. VOLLAN, M.D.,† former assistant secretary, Council on Medical Education and Hospitals, American Medical Association, has been appointed dean of the faculty, Chicago Medical School.

JAMES M. A. WEISS, M.D., M.P.H.,† former chief, Mental Hygiene Consultation Service, USA, Fort Bliss, Tex., is now director, Malcolm Bliss Psychiatric Clinic and instructor in psychiatry, Washington University School of Medicine, St. Louis, Mo.

ARTHUR E. WILLIAMSON, former director of municipal engineering, North Dakota State Department of Health, is now director of environmental sanitation, Wyoming State Department of Health, Cheyenne.

ALFRED H. WIETERS, M.S.,* assistant chief, Water Pollution Control Program, Public Health Service, is serving as a consultant to the Ministry of Health in Brazil. His address is Division of Health, Welfare and Housing, USOM, Mission to Brazil, Institute of Inter-American Affairs, c/o American Embassy, Rio de Janiero, Brazil.

EUGENE R. ZIMMERMANN, D.D.S.,† former dental epidemiologist, National Institute of Dental Research, is now assistant professor, oral pathology and instructor in dental public health, Departments of Oral Pathology and Public Health, Baylor University College of Dentistry, Dallas, Tex.

DEATHS

NORMAN G. ANGSTADT, M.D., M.P.H.,† medical director, public school system, Reading, Pa., November, 1954 (Health Officers Section).

OSWALD T. AVERY, M.D., Sc.D., LL.D.,† Nashville, Tenn., emeritus member, Rockefeller Institute for Medical Research, and winner of an APHA Lasker Award in 1947, on February 20 (Unaffiliated).

MARGARET C. DONALDSON,† executive secretary, Bethlehem Tuberculosis and Health Society, Bethlehem, Pa. (Public Health Education Section).

LOUISE P. EAST, R.N.,† consultant public health nurse, District No. 3, North Carolina State Board of Health, Asheville, June, 1954 (Public Health Nursing Section).

WILLIAM FERNHOFF, M.D.,† of Woodridge, N. Y., on April 2 (Health Officers Section).

MARTIN GUMPERT, M.D.,† research fellow in geriatrics, New York University, Goldwater Memorial Hospital, New York, N. Y., on April 18 (Medical Care Section).

DR. RICHARD P. LIENHARDT † of Wayne, Delaware County, Pa., on November 16, 1954 (Unaffiliated).

PHILIP E. MARKS, M.D.,† superintendent, Bureau of Infectious Diseases, Pittsburgh (Pa.) Department of Public Health on February 18 (Health Officers Section).

ETHEL S. PALMER,† executive secretary, Yamhill County (Ore.) Public Health Association, on December 14, 1954 (Public Health Education Section).

DONALD Y. SOLANDT, M.D., D.P.H.,† professor and head, Department of Physiological Hygiene, University of Toronto, Toronto, Ont., Canada, on March 30 (Occupational Health Section).

CONFERENCES AND DATES

American Public Health Association 83rd Annual Meeting. Kansas City, Mo., November 14–18.

State and Regional Public Health Meetings:

Colorado Public Health Association. Antlers Hotel, Estes Park, Colo. June 23–24.

Montana Public Health Association. Missoula, Mont. June 3–4.

New England Health Institute. Colby College, Waterville, Me. August 30–September 1.

New York State Annual Health Conference. Lake Placid, N. Y. June 6–9.

Pennsylvania Public Health Association. Pennsylvania State University, State College, Pa. August 15–18.

Meetings of Other Organizations Coming in June, July, and August:

Adirondack Workshop (Community Chest and Councils of America) "Communications in Social Welfare." Silver Bay, Lake George, N. Y. July 7–12.

American Diabetes Association. Atlantic City, N. J. June 13–15.

American Hearing Society. Hotel Morrison, Chicago, Ill. June 12–14.

* Fellow.
† Member.

American Home Economics Association. Minneapolis, Minn. June 28–July 1.
American Medical Association. Atlantic City, N. J. June 6–10.
American National Red Cross. Atlantic City, N. J. June 13–15.
American Physical Therapy Association. Hotel Jefferson, St. Louis, Mo. June 20–24.
American Veterinary Medical Association. Minneapolis, Minn. August 15–18.
American Water Works Association. Chicago, Ill. June 12–17.
Canadian and British Medical Associations. Joint Meeting, Toronto, Canada. June 20–22.
National Association for the Prevention of Tuberculosis. Fourth Commonwealth Health and Tuberculosis Conference. Royal Festival Hall, London, England. June 21–25.
National Association of Sanitarians. Sheraton Plaza Hotel, Boston, Mass. August 22–25.
National Council on Family Relations. Minneapolis, Minn. August 23–26.
National Medical Association. Los Angeles, Calif. August 8–11.

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Sullivan, M., and Bereston, E. S.; J. Invest. Dermat., 19, 175-178.
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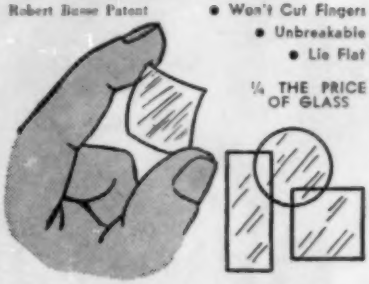

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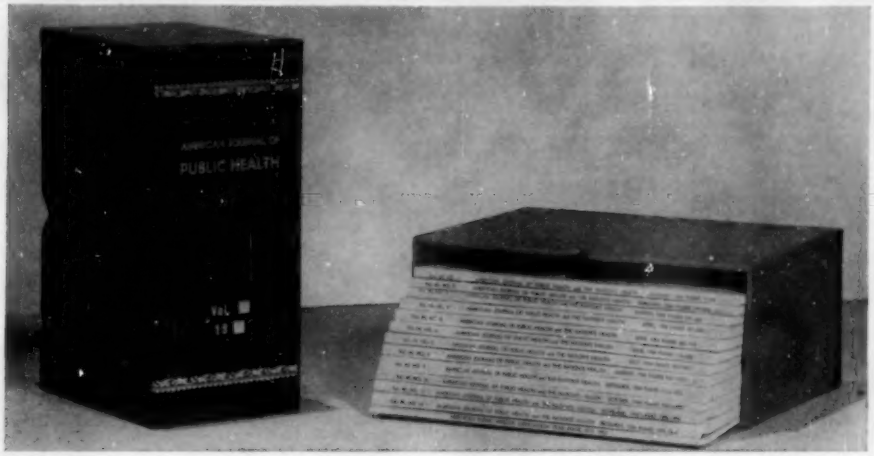

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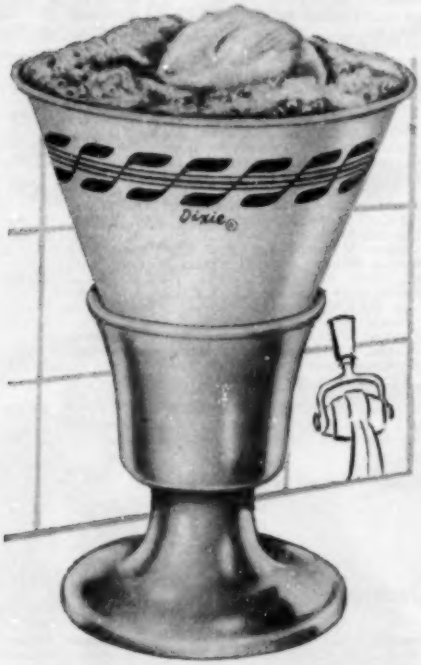

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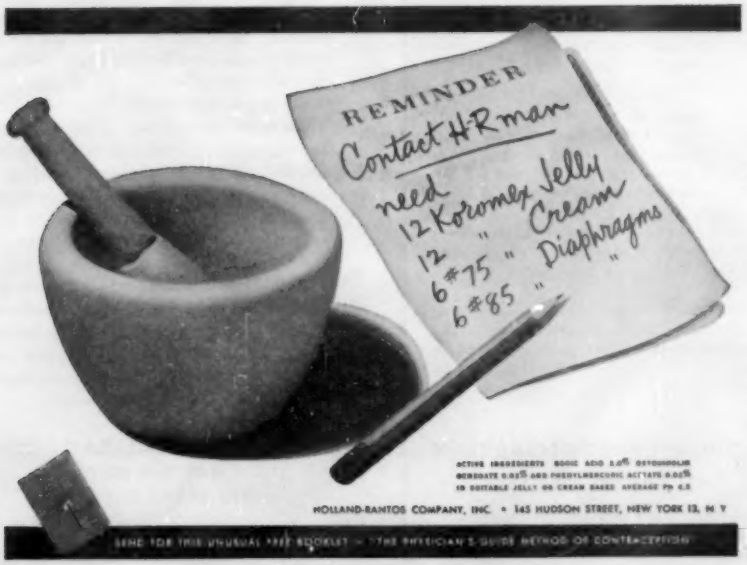

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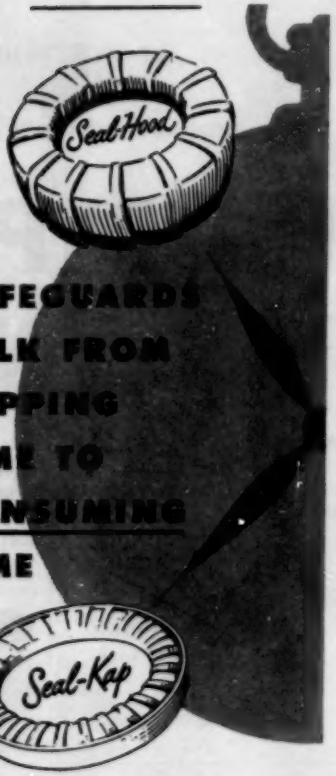

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Recent studies reaffirm the "hypothesis that atherosclerosis is fundamentally a metabolic disease subject to important dietary influences"[1] and do much to refute contentions that foods containing cholesterol should be avoided in general diets.

Arterial disease resembling that in human subjects was produced in Cebus monkeys fed diets high in cholesterol and low in sulfur amino acids. Within 2 to 8 weeks after initiation of the regimen serum concentration of cholesterol rose to levels of 300 to 800 mg. per 100 ml. "The hypercholesterolemia could be largely prevented by feeding 1 gram per day of dl-methionine or l-cystine as supplements to the diet." Also, the elevated cholesterol levels "could be restored to normal by feeding 1 gram of dl-methionine but only partially restored by 0.5 gram of l-cystine daily."

According to the investigators, the "vascular lesions were in the ascending aorta but extended from the valves of the left ventricle to the proximal portions of the carotid and femoral arteries . . . The aortic lesions were chiefly characterized by the presence of lipid-laden phagocytes and increase in collagen and elastic fibers. The lipids were in part cholesterol derivatives."

Cholesterol, an essential metabolite produced in intermediary metabolism,[3] is biosynthesized from dietary protein, fat, and carbohydrate.[4] Normally, its synthesis is exquisitely controlled to insure adequacy as well as to protect against an oversupply.[4] Furthermore, considerable evidence indicates that an increased cholesterol intake is not an etiologic factor in alleged aberrations of cholesterol metabolism such as atherosclerosis.

In widely variable amounts, cholesterol occurs in foods of animal origin—meat, poultry, fish and marine foods, eggs, milk products—all foods of great nutritive value.[5] Present knowledge in no way warrants alteration in the customary consumption of these foods because of their contained cholesterol.

Skeletal muscle of beef, lamb, pork, and veal provides but small amounts of cholesterol, approximately 0.06 Gm. per 100 Gm. moist weight of meat.[6] Since atherosclerosis may interfere sharply with normal nutrition, the patient should consume diets rich in protein foods (such as meat), vitamins, and fruit.[6] In addition to high quality protein, meat supplies valuable amounts of needed B vitamins and essential minerals.

1. Mann, G. V.; Andrus, S. B.; McNally, A., and Stare, F. J.: Experimental Atherosclerosis in Cebus Monkeys, J. Exper. Med. *99*:195, 1953.
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3. McLester, J. S., and Darby, W. J.: Nutrition and Diet in Health and Disease, ed. 6, Philadelphia, W. B. Saunders Company, 1952, pp. 717-518.
4. Editorial: The Biosynthesis of Cholesterol, J.A.M.A. *152*:1435 (Aug. 8) 1953.
5. Okey, R.: Cholesterol Content of Food, J. Am. Dietet. A. *21*:341 (June) 1945.
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The Seal of Acceptance denotes that the nutritional statements made in this advertisement are acceptable to the Council on Foods and Nutrition of the American Medical Association.

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